

Variety: female (figs. 4, 5) has (more than the other varieties) two indistinct black spots on the upper side of the anterior wing. On the under side there are three such spots (two only, dotted with light blue). On the under side of the posterior wing there is a fifth black spot.

Exp. ♂  $3\frac{2}{10}$  inches, ♀  $3\frac{6}{10}$  inches.

Hab. New Guinea.

Greatly as the four examples of the plate differ from each other, I cannot separate them, except in colour; their chief variation seems to consist in the differing distance of the eye-like spots from the outer margin. This may be noticed also in the genus *Drusilla*, in which the beautiful large eyes of the posterior wing vary much in their relative distance from the outer margin.

6. NOTES ON THE HABITS, HAUNTS, ETC. OF SOME OF THE BIRDS OF INDIA\*. BY A. LEITH ADAMS, M.B., SURGEON 22ND REGIMENT. COMMUNICATED BY MESSRS. T. J. & F. MOORE.

The Vulture tribe is very generally distributed over India, and yet the traveller may journey over a vast extent of that country and meet with scarcely a single species; for during the greater part of the day they mount to high elevations and soar in great circles, seldom remaining constant in any locality. They prefer the neighbourhood of towns or along the highways, often congregating in flocks; and it is not uncommon to see different species together. We have seen them even in the centre of the Scinde deserts; in fact no situation is without its species, for with few exceptions they abound all over Asia.

I have devoted much attention to the question whether these birds discover their food by smell or sight; and after many practical observations I am convinced it is by sight alone they are enabled to find out their prey. In illustration of this fact, I may adduce the following as an occurrence familiar to every Himalayan sportsman. After a bear or other large animal is killed, the hunter soon finds himself surrounded by rapacious birds, where none were seen before; they are observed dashing down the glens, and sailing in circles around his quarry. Some sweep within a few yards of him. Others are soaring at higher elevations, and even at such vast altitudes that the huge Bearded Vulture appears only as a small speck in the deep blue heavens; but gradually it becomes more distinct as its wide gyrations increase. It may gather itself up and close its wings, or dash in one fell swoop hundreds of feet, and the

\* Throughout the following paper I have given only the result of careful examination and experience. No species is named whose identity I have not confirmed; such as are doubtful will be left unnamed and a description given, taken shortly after death. The nomenclature followed is with little variation that of Blyth's catalogue.—A. L. A.

next minute is seen perched on the jutting rock beside him. Such, then, are the usual appearances observed immediately after the death of a large animal; and the hunter wonders whence all these big Vultures and Carrion Crows have come: but if, immediately after his noble Ibex has rolled down the crag, he directs his eyes heavenward, he will observe Carrion Crows and Vultures at various distances and elevations sailing leisurely about; and very probably the one nearest to him, observing the death of his quarry, instantly commences to descend; then one follows the other, until the valley resounds with the hoarse croakings of the Crows, and the air seems alive with them. It is surprising the numbers that are sometimes observed to congregate on these occasions; I have seen no less than sixty Vultures and Crows on and around the carcase of a bear.

1. *GYPÆTUS BARBATUS* (Linnæus).

Bearded Vulture.

“Greed” of the Cashmerees, but generally applied to all the species.

Among all the grandeur and beauty of the Himalayas I know few sights more attractive to the naturalist than to behold the Vultures and rapacious birds soaring over the vast ravines and around the tops of the mighty mountains in the clear blue sky of a July afternoon,—the setting sun casting his last rays on the distant snow-clad mountains, the quiet evening broken only by the cry of the eagle, the bleat of the goat, or the shrill pipe of the Black Partridge. There is to be seen the Bearded Vulture (the Indian, Bengal, and Egyptian species) and kites and eagles wheeling in vast circles around the summits of the towering mountains as if it were all in one medley; but more conspicuous than the others is seen the immense Bearded Vulture.

It frequents the Western Himalayas to very high elevations, and is found likewise on the Salt and Suliman Ranges of the Punjab. I have seen a solitary bird at Peshawur; but it is seldom seen on the plains of India, and when at all, close to the mountains. The Bearded Vulture does not strictly confine itself to live animals; for on the hill stations at daybreak, among the first camp-scavengers, it is seen sailing leisurely along the mountain-sides in search of offal and refuse. However, it would appear, circumstances change to a great degree the habits of many rapacious birds; and although this species is a foul feeder in camp, in the solitude of his native mountains he hunts with great boldness and intrepidity. The Brown Eagle (*Aquila navia*) of the Himalayas, in form perhaps the most typical of its family, I have seen frequently feeding on carrion and refuse. Yet, with all, the Lämmergeier is a noble-looking bird, either when feeding in camp or hunting for prey on the more distant mountains. When thus employed, he flies low, keeping within a few yards of the ground, and describes circles on the mountain-side until he has beaten it from top to bottom. The Bearded Vulture is easily distinguished on wing from any other species by the long sharp-pointed wings and tail. There are two varieties of plumage—that of the

young and old. The former has the head and neck black, with a tinge of sooty-black all over the body; the adult has the same parts rufous-white. The feathers on the legs are long and plume-like, and project much backwards, particularly obvious when the bird is feeding. There are few rapacious birds possessing greater powers of flight, although generally to be seen sailing quietly and slowly along the mountain-sides, flapping now and then his long wings when he wishes to mount higher. If suddenly frightened, or bullied by his common tormentors Govind Kites (*Milvus govinda*) or Indian Jackdaws (*Corvus splendens*), he will shoot like an arrow down the ravine, then rise up with an easy but very rapid flight. It is by no means a shy bird, and will often pass within a few yards of one when searching for food. The nest is always built among rocks and inaccessible places. On one of the lesser ranges near Simla I found its nest and two young on a cliff overhanging a steep ravine; a vast collection of bones of sheep and cattle was strewed around—the refuse of one of the European stations not many miles distant. The eye of the Lämmergeier, although much smaller than might be expected in such a large bird, is bright and keen; the sclerotic coat red, and iris white: the former is brown in the young bird until its second year. Bruce, the African traveller, mentions having killed one weighing 22 lbs.; but none I have shot weighed above 14 lbs. From the tip of the bill to the extremity of the tail the largest measured 3 feet 11 inches, and between the extremities of the wings 9 feet. In the stomach of one killed by me on the mountains of Cashmere I found several large bones, together with a hoof of an Ibex. Many tales are told by the natives of the Himalayas, of the boldness and strength of this species, that the ibex, young bears, sheep, and goats are often carried away. The Marmots (*Arctomys Tibetanus* et *Himalayanus*) constitute their favourite prey; and wherever they abound, Bearded Vultures are to be seen. Among the feathers of the neck and lower parts are secreted quantities of a rust-coloured powder like cinnamon. The use of this ingredient I have never been enabled to discover, unless it keeps the feathers dry when the bird is feeding on carrion.

## 2. GYPS INDICUS (Scopoli).

### Indian Vulture.

The Indian Vulture is larger than the bearded species, and is probably the largest of the tribe found in Hindostan. It measures generally about  $8\frac{1}{2}$  feet between the tips of the wings; length of body, including tail,  $3\frac{1}{2}$  feet. The largest I ever shot, apparently a fine old male, was 8 feet 11 inches between the tips of the wings, and 4 feet from the beak to the extremity of the tail; weight 19 lbs. The species is common all over India, and is seen in the interior of the Himalayas; indeed it is seldom the sportsman can leave his dead quarry an hour before he finds these birds devouring it. In the course of a few hours I have seen the carcass of a bear devoured by these birds, assisted by Bearded Vultures and Carrion

Crows. The backbone was generally the only part of the bear visible after their repast; and so nicely cleaned was the vertebral column, that it might have been done by the scalpel of an anatomist. They are common camp-visitors, but by no means so bold as others of the family, preferring to feed in secluded places, while the Egyptian Vulture can be seen on almost every dunghill in India. It would appear they prefer the carcases of the dog, sheep, or ox in a putrid state to any other sort of offal. In clear evenings, and particularly after a sumptuous repast, they may be seen soaring in circles at vast elevations, and at dusk congregate in flocks of from thirty to forty, frequently accompanied by Bengal and Pondicherry Vultures, all huddled together on a rock or decayed tree: the white heads of the two former distinguish them from the red of the Pondicherry Vultures. Fights sometimes ensue; but, from the tardy movements of the combatants, they are seldom severe or bloody. Along with the other Indian species, it hunts the shores of the Ganges in search of the dead bodies of Hindoos, and likewise follows the armies of India in the field; and when the roar of the cannon and clash of war have died away, they repair in hundreds to the scene, and glut on the dead bodies of the fallen.

### 3. GYPS BENGALENSIS (Gmelin).

Bengal Vulture.

Is widely distributed over Bengal and the Lower Himalayan Range, but does not appear to travel far into the interior of these mountains. It is at once distinguished on the wing from having the lower part of the back, and under surface of the wings, pure white; when the latter are closed, the white on the back is not visible. These marks are very distinctive, and sufficient to discover the bird at very high elevations. Its total length is about 3 feet; and between the tips of the wings it measures 7 feet 8 inches. It is one of the keenest-sighted of the Vulture tribe, and usually the first to discover a dead animal.

### 4. OTOGYPS CALVUS (Scopoli).

*Vultur Pondicerianus*, Latham.

Red-headed Vulture.

Is found in Bengal, the Deccan, and Lower Himalayan Range, but does not travel any distance into the interior of these mountains. This species is easily distinguished from the others by the red colour of the skin on the head and neck. In size it is less than the preceding. Total length about  $2\frac{1}{2}$  feet. Bill bluish-black, cere yellow, feet deep yellow.

### 5. NEOPHRON PERCNOPTERUS (Linnæus).

Egyptian Vulture.

With perhaps the exception of the Govind Kite (*Milvus govinda*, Sykes), this is the most abundant and generally distributed of the

Indian Raptores. It is found in Scinde, but not common. It is abundant in the Deccan, Bengal, Punjab and Valley of Cashmere, but does not travel far into the interior of the Himalayas. Its habits are strictly domestic, frequenting towns and camps, where it lives on almost every description of offal and putridity. Its flight is unsteady and slow; and when on the ground, it walks with head erect, lifting the legs high, much after the manner of crows. The Indian authorities fully appreciate the value of its services; for in many districts of Bengal there is a penalty for shooting this species and the Govind Kite. Egyptian Vultures regularly repair to the European barracks during meals, and may be seen feeding in hundreds on the ground, and the Govind Kites darting down and bearing away in their talons the bone which the Egyptian Vulture is busily cleaning, the Kite devouring the flesh as it sails away. The two species never quarrel, and may be seen often perched together. During the march, they accompany regiments for hundreds of miles; and regularly at daybreak, as the camp is being formed, these vultures may be seen in flocks approaching from the direction of the last encamping-ground. This remark applies likewise to Govind Kites and Indian Jackdaws (*Corvus splendens*).

The Egyptian Vulture is the smallest of its tribe found in India. The total length does not exceed 2 feet 2 inches, and the size is about that of the Raven. The iris is yellow\*. The shades of plumage are consequent on age; and it appears the adult garb is not obtained until the third year.

Besides the species above mentioned, the *Vultur kolbii* may be reckoned as an occasional visitor on the interior range of the Western Himalayas; and as the Griffin Vulture has been shot in Persia, I see no reason why that species likewise may not be found on the more western ranges, Hindoo Koh, &c.

#### 6. AQUILA CHRYSÆTOS, Linn.

Golden Eagle.

I shot a young bird (Ring-tailed Eagle) on the Chor Mountain, near Simla, with a Kalij Pheasant (*Lophophorus albo-cristatus*) in its talons. The species frequents the Western Himalayas, but is not common.

#### 7. AQUILA BIFASCIATA (Gray).

Is common around Poonah, in the Deccan. I have seen them roosting on the tops of houses; they feed at times on carrion.

#### 8. AQUILA NÆVIA (Gmel.).

Spotted Eagle.

Is plentiful on the Western Himalayas, and less common in the Punjab. Its flight is rapid and strong. With Kites it is often seen feeding on offal in the Hill Stations near Simla.

\* Some authors state the iris to be brown; true as regards the young bird only.

9. ? *AQUILA MALAYENSIS*, Temminck.

Black Eagle.

In Rupshoo in Ladakh I saw an eagle about the size of the *A. chrysaetos* (colour black, but head and neck white, tail long and wedge-shaped), probably belonging to this species.

10. *HALIAËTUS MACEI*, Temminck.

Mace's Eagle.

Met with all up the Indus and its branches; very common on the Jhelum in the Valley of Cashmere. Its favourite haunts are low level shores, where it is often seen perched on a rock or decayed trunk of a tree, intently watching for fish. I have seen it frequently feeding on offal and the remnants of sheep and goats slaughtered for the use of the regiment during a march through Seinde. There is much variety in regard to colour. The bird after two years has the head and neck of a dirty white, body and wings black, rump and tail white, the latter broadly tipped with black. Young birds of the first year have very little white on the tail; and the head and neck are rufous. Its cry is loud, and resembles the cackle of the domestic fowl. They are very abundant on the Jhelum river and lakes of Cashmere, and so tame that boats may approach within a few yards of them. The *iris* is light brown. In the month of December 1852, a pair built on a poplar tree in the vicinity of a marsh close to Rawul Pindee; and by the end of the following month the young were hatched. I frequently observed the parents hunting in a pond for fish and dead snipe killed by sportsmen.

11. *HALIASTUR INDUS*, Boddart.

Common on the Indus. Has much the habits of the Govind Kite; feeds on refuse as well as fish. Does not seem to frequent the rivers of the Panjab, although very common in Seinde.

12. *MILVUS GOVINDA*, Sykes.

Govind Kite.

There is considerable variety in colour of plumage in this species; scarcely two specimens are exactly similar. I have shot Govind Kites so dark of plumage, that I could not discover the slightest difference between this bird and *M. ater* of Gmelin: I believe they are identical. Abundant all over Bombay, Bengal, and the lower range of the Western Himalayas.

One afternoon, when the steamer was drawn up by the bank of the Indus, I observed a native washerman close by eating his fowl and curry. He was busy devouring a wing, when down dropped a kite, and actually, by means of its talons, tore the wing from between his teeth, devouring the capture as it sailed away. A few weeks afterwards, while sailing up the Sutlej river in small country boats, we halted at noon on a wet and sandy beach, for the purpose of allowing our party time to cook their dinners. As the soldiers and women were returning from the cooking-station about 30 yards from the

boats, carrying their plates filled with beef and rice, a flock of kites assailed them, darting like so many arrows on the laden platters, and bearing away the contents: the sight created great mirth in those who had dined. One poor woman, from the clayey nature of the soil, was unable to extricate herself, and stood there with out-stretched arms, begging for assistance as each successive kite darted down on her plate, until they completely devoured her dinner. It is wonderful the unerring accuracy with which these birds dart on their food: as soon as a piece of flesh is thrown on the ground, down darts a kite and seizes it with his talons, devouring it as it sails away; and so daring and undaunted are they, that, in the case of the poor washerman, his wife was obliged to stand over him with a stick, which she waved over his head during the remainder of the meal.

The Kite's nest is built of twigs lined with wool or any soft substance. The eggs are white, with rust-coloured streaks on the larger end. They generally build near the native towns and villages, particularly on the chunar trees in the Valley of Cashmere. They commit great havoc among young poultry and tame pigeons, which they torment to death by chasing them, until, worn out, the pigeon falls to the ground, and is soon despatched by his relentless enemy.

13. *CIRCUS ÆRUGINOSUS* (Linnæus).

Moor Buzzard.

India. Common.

14. *CIRCUS SWAINSONII*, Smith.

Punjab; Scinde. Pretty common.

15. *CIRCUS MONTAGUI*, Vieillot.

Punjaub and lower range of the Western Himalayas. Common.

16. *POLIORNIS TEESA* (Franklin).

Around Poonah in the Deccan pretty common; not seen in the Punjab or Western Himalayas.

17. *ELANUS MELANOPTERUS*, Daudin.

Scinde and Punjab. Favourite food, mice.

18. *CIRCAËTUS GALLICUS*, Gmelin.

Bombay, Bengal. Common in the Punjab, particularly in the north-west, near Rawul Pindee.

19. *FALCO PEREGRINUS*, Linnæus.

Used by the Mahrattas for hawking. Inhabits Scinde. I found a nest on a tree on the banks of the Indus below Ferozepore, containing two young. On dissecting a specimen shot in Scinde, I found large coils of a species of Round Worm of about the thickness of a packthread, and 8 to 12 inches in length. Although the abdominal cavity was infested with them, the bird appeared plump and in good condition.

20. *FALCO PEREGRINATOR* (Sundeval).

Shot one near Simla on the Western Himalayas.

21. *FALCO CHICQUERA*, Daudin.

Lower range of the Western Himalayas, and N.W. frontier of the Punjab.

22. *TINNUNCULUS ALAUDARIUS* (Brisson).

*Falco tinnunculus*, Linnæus.

Deccan, common; seen at dusk in almost all situations; preys chiefly on large insects, mice, and the Black-breasted Lark-finch (*Pyrhalauda grisea*). Punjab, Lower Himalayas, and Cashmere, common.

23. *TINNUNCULUS CENCHRIS*, Frisch.

*Falco tinnunculoides*, Temminck.

Abundant in many districts on the lower Himalayan Ranges, and preys extensively on the Mountain Pipit.

24. *FALCO ÆSALON*, Gmelin.

N.W. frontier of the Punjab (Peshawur), during the cold months only.

25. *ACCIPITER NISUS*, Linnæus.

N.W. Himalayas, pretty common.

26. *ACCIPITER DUSSUMIERI* (Sykes).

Deccan, Scinde, Punjab, and Cashmere, pretty common; favourite prey, larks and pipits.

27. *MICRONISUS BADIUS* (Gmelin).

Punjab and Cashmere; seen frequently, but not so common as the last.

28. *ASTUR PALUMBARIUS* (Linn.).

Seen only in a domestic state. The ex-Ameers of Scinde had several very fine specimens at Poonah trained for hunting. Said to inhabit the Western Himalayas.

29. *BUFO BENGALENSIS*, Franklin.

Common in the northern Punjab and cultivated districts on the Lower Himalayas.

30. *ASIO BRACHYOTUS*, Gmelin.

Pretty common all over the Punjab and lower ranges of the W. Himalayas.

31. *KETUPA CEYLONENSIS* (Gmel.).

Western Himalayas, not common. Iris deep orange.



32. *ATHENE CUCULOIDES*, Vigors.

Lower Himalayan ranges, northern Punjab. Pretty common; killed one devouring a brown rat; the crop contained a mouse and beetles.

33. *ATHENE BRAMA*, Temminck.

Common in the Deccan, Scinde, Punjab, and W. Himalayas.

34. *ATHENE BRODIEI*, Burton.

I saw one specimen of this small species near Simla on the W. Himalayas. Not common.

35. *UPUPA EPOPS*, Linn.

India and on the Western Himalayas as far north as Chinese Tartary. I found it common in Ladakh. Often seen on trees. Its cry resembles the words *hoo hoo*. The *Dicrurus longicaudata* (A. Hay) is its frequent tormentor. On the fine glassy glades in the Valley of Cashmere the Hoopoe may be seen digging its long bill into the soft turf in quest of insects; and just as its labour is nearly done, down pounces the black Drongo Shrike (*Dicrurus*) to secure the fruits of its toil.

36. *HALCYON SMYRNENSIS* (Linnæus).

India, common.

37. *CERYLE RUDIS* (Linnæus).

India and Himalayas, common.

38. *ALCEDO BENGALENSIS* (Gmelin).

India and Lower Himalayan ranges. Very plentiful on the streams and lakes of Cashmere, and adding much to the beauty of the far-famed Shalimar gardens and the delightful scenes in that romantic land.

39. *CORACIAS INDICA*, Linnæus.

India, W. Himalayas, Cashmere; common. The *C. garrula* is said (Blyth's Cat. As. Soc. Mus. p. 51) to frequent the latter country; but this I think is very doubtful. The Indian Roller is everywhere abundant; they perch on the broad tops of the mango trees in the Deccan, and at dusk sport from tree to tree with a zigzag flight in quest of insects. Their cry is harsh and loud. The nest is often built in the thatch of houses or in chimneys.

40. *MEROPS APIASTER*, Linn.

Plentiful at certain seasons and in particular localities both in the Punjab and Western Himalayan ranges. May be seen in large flocks at Peshawur, on a fine afternoon in summer, sailing overhead, with that peculiar flight by which the family are so readily distinguished: it is usually after a shower of rain, when the White Ants take flight and the air is filled with these insects, that the Bee-cater

is seen sporting about and feeding sumptuously. The larger size and louder call-note distinguish this from other Indian species.

41. *MEROPS VIRIDIS*, Linnæus.

Indian Bee-eater.

Abundant all over India and the warmer parts of the W. Himalayas. It is frequently seen in large flocks sailing over pools or across desert sands in quest of insects. What are called varieties of this species are, I think, only immature birds before the first moult.

42. *CHLOROPSIS MALABARICUS* (Jardine).

A specimen of the above was procured from a collection made on the Eastern Himalayas near Nipal. Apparently not a native of the Western Himalayas.

43. *BRACHYPTERNUS AURANTIUS* (Linnæus).

Scinde and Lower Himalayas; pretty common. One specimen from the Himalayas had the feathers on the forehead black, edged with white; supposed to be a female or variety. Iris red.

44. *GEVINUS SQUAMATUS* (Vigors).

A common Himalayan species; frequents dense oak and pine forests or jungles. Habits and call resemble the Green Woodpecker. Confined to the mountain-ranges.

45. *PICUS MAHARATTENSIS*, Lath.

Not uncommon at Poonah; occasionally in Scinde; not seen in the Punjab or Himalayas.

46. *PICUS HIMALAYANUS* (Jardine and Selby).

The most common and widely distributed Woodpecker in the East; found all over India, and in all wooded districts on the Western Himalayas.—Qu. Is *P. majoroides* (Hodg.), a distinct sp.?

47. WHITE-HEADED WOODPECKER.

A species seen on one occasion in a forest on the ranges around the Valley of Cashmere. About the size of the Lesser Woodpecker. Head, neck, and breast white; back blue; vent and under parts red.

48. *MEGALAIMA VIRENS* (Boddaert).

Frequents dense forests and jungles on the Western Himalayas, confined to the mountain-ranges; is often met with on the Cashmere mountains. Flight rapid, and like the true Woodpeckers; cry loud and harsh. Gizzard contained small seeds, no insects.

49. *MEGALAIMA INDICA* (Latham).

Pretty common at Poonah, in the Deccan; not seen on the Himalayas or in the Punjab.

## 50. CUCULUS CANORUS, Linnæus.

Deccan; at Poonah pretty common. Abundant from the lower ranges to the limits of forest on the Himalayas; commences to call in March and ceases in June. I saw them on the Himalayas in August and September, and was informed by natives that they remain all the year.

## 51. EDOLIUS CUCKOO\*.

This bird is common in the Deccan and Western Himalayas, particularly in the Valley of Cashmere, where its loud note is heard in every brake, and resembles the word "coel" repeated frequently. The following is a description of one I shot at Poonah. Iris hazel; size of Blackbird; crested; crest and all upper surface of body black glossed with green; the tip of tail white; a bar of white across the wings; lower surface of body a dirty white; that on the throat and neck tinted blue; lower feathers of tail graduated, with white tips; feet black. No difference between sexes. Gizzard contained caterpillars.

## 52. CENTROPUS RUFIPENNIS (Illiger).

Malabar Crow of Europeans.

Common in the neighbourhood of Poonah, not seen in the Punjab or Himalayas; frequents plantations; flight easy and noiseless. Gizzard contained grasshoppers and large insects.

## 53. CENTROPUS, sp. ?

Hooked-billed Cuckoo.

These birds are common in low bushy places on the ranges near Simla, W. Himalaya; confined to the mountains; gregarious; notes rough; flutter about bush to bush like the Bush Thrushes; size about that of the Song Thrush; bill much curved and a bright scarlet, becoming fainter towards the tip; the lower parts of the body are ochreous brown, upper parts brown; wings short and rounded; tail long, broad, and fan-like; tarsus large and strong; feet rather small; versatile toes nearly equal to lateral; general cast of plumage lax, and points of feathers spinous, especially about the head and neck. Gizzard contained an entire lizard of about 3 inches in length, and several locusts, beetles, and large insects. Always secreting itself in thick coverts, is oftener heard than seen.

## 54. CAPRIMULGUS, sp. ?

A species very common on the lower ranges of the Himalayas. Size of the British species. Crown of head brown, minutely barred, the centre of a few feathers black; a white spot on the throat; the four outer wing-quills barred with white, the two outer quills of the tail broadly terminated with white; claw serrated.

## 55. CAPRIMULGUS, sp. ?

Seen rarely on the Western Himalayas; total length 10 inches:

\* *Oxylophus melanoleucus* (Gmel.).—F.M.

specimen a female. Wing-quills and tail barred and spotted with rust-colour, the rust-coloured spots on the centre of the second and third wing-quills; throat-patch rufous, with a tinge of rufous all over the lower parts. Gizzard contained small seeds, earwigs, and grasshoppers.

56. *CYPSELUS MELBA* (Linnæus).

Sometimes seen in large flocks during the cold months in the Punjab; at all seasons on the W. Himalayas.

57. *CYPSELUS APUS* (Linnæus).

Abundant on the rocky banks of streams in Ladakh; Cashmere; very plentiful in the Punjab during the rainy months.

58. *CYPSELUS AFFINIS*, Gray.

Scinde and Punjab, pretty common. Builds under the eaves of houses: the nest is made of mud intermixed with wool or feathers.

59. *CORVUS CORAX*, Linnæus.

The Raven found in Ladakh is larger than the *C. corax*; but I saw no other difference, and am inclined to think it is only a variety\*. The species is an inhabitant of the northern countries of India, commencing at Upper Scinde; it is found all over the Punjab at every season of the year, where they frequent camps and cantonments with Govind Kites and Egyptian Vultures. Mr. Blyth is wrong in saying the species does not frequent India, if by that he means the Punjab and Scinde (*vide* Cat. Mus. As. Soc. p. 89).

60. *CORVUS CULMINATUS*, Sykes.

Abundant in the Deccan, Scinde, but not in the Punjab. It is plentiful on the Western Himalayas, from the lower ranges northwards to Ladakh, Cashmere, &c.†

*Note*.—I think I have seen the *C. cornix* in the latter countries, and rather think it is a native of the more western Himalayan ranges, Hindoo Coosh, &c.‡

61. *CORVUS SPLENDENS*, Vieillot.

India universally, lower Himalayan Ranges, including Cashmere, but does not travel far into the interior; is frequently seen in the society of the *C. monedula* in the localities frequented by the latter.

62. *CORVUS FRUGILEGUS*, Linnæus.

A winter visitor in the N.W. frontier of the Punjab at Rawul Pindee, abundant; arrives about the beginning of September, and

\* Is separated as *C. Tibetanus*, Hodg. (*vide* Catal. Birds Mus. E.I.C. ii. p. 553).—F. M.

† Mr. Blyth states this to be the “‘Raven’ of Europeans in India.” I never heard it so called (*vide* Cat. Mus. As. Soc. p. 89).—A. L. A.

‡ Specimens of *C. cornix* from Mesopotamia and Afghanistan are contained in the Museum of the East India Company.—F. M.

leaves before the end of March. Its migrations, I think, are westward. I never saw it in Cashmere in summer; unless a winter visitor, it is not found on the ranges eastward of Peshawur.

63. *CORVUS MONEDULA*, Linnæus.

Confined to certain places; nowhere more abundant than in the Valley of Cashmere. The imperial palace of His Highness Goulab Sing, with its crumbling walls, and the ruins in the Shalimar and Neshat gardens on the lake, offer excellent retreats for this species. During the breeding-seasons they congregate in vast numbers, and cover the adjacent country. I have seen them with rooks in the neighbourhood of Rawul Pindee and Peshawur, but only during the cold months; with this exception, it appears the species is confined to the locality above-mentioned.

64. *CORVUS CORONE*, Linn.

Lesser Carrion Crow.

Closely allied to the Indian Crow (*Corvus culminatus*), but very much smaller, and not larger than the Indian Jackdaw, is a black crow which frequents the lower Himalayan ranges from Peshawur to Simla. I can find no reference to this species anywhere. In habits it closely resembles the jackdaw; but its appearance is very like the Carrion Crow (*C. culminatus*). "Nostrils covered with bristles; colour metallic black like the rook; tail wedge-shaped; the feathers of the tail and secondary quills of the wings are *mucronated* at their tips. It feeds on offal and carrion, is gregarious; flight strong and rapid. Is often seen tormenting Govind Kites and birds much larger than itself."

65. *NUCIFRAGA HEMISPILA*, Vig.

Frequents the great forests on the W. range of the Himalayas, Cashmere pine forests, pretty common; and on the wooded ranges near Simla. A wandering bird, and not common anywhere. Generally seen at high elevations; they live among the topmost branches of the pine trees. Its harsh discordant cry is like that of the Magpie.

66. *FREGILUS GRACULUS* (Linnæus).

The Chough is often met with in the W. Himalayas, and during winter migrates with jackdaws to the N.W. frontier of the Punjab. Abounds on the Cashmere mountains, and may be seen in small flocks around the margin of melting snow, where the insects and roots it feeds on are obtained. Its wild excited flight, and still wilder cry, attract the sportsman's attention.

67. *PYRRHOCORAX ALPINUS*, Vieill.

Very distinct from the last, and frequents the high ranges in the interior of the Himalayas: pretty common in Ladakh. The food consists of insects and fruit; of the latter, mulberries constitute the chief portion.

68. *PICA BOTTANENSIS*, A. Delessert.*P. megaloptera*, Blyth.*P. Tibetana*, Hodgson.

Differs but little from the European bird. Its favourite habitat is among the dreary and desolate mountains of Ladakh; and it would appear it is found only in that country on the Western ranges. It is strange that a bird, whose near ally is so fond of fertile localities in Europe, should prefer the wastes of Little Tibet to the cultivated and wooded mountains of Cashmere: but such is the case; and the Magpie is the same crafty and familiar bird among his Tartar friends as with Englishmen.

69. *DENDROCITTA RUFA* (LeVaill.).

Scinde, Punjab, and lower Himalayan Ranges, pretty common. Its loud resonant cry is heard at a long distance. Its haunts are in retired wooded places; is oftener seen solitary than otherwise. Locusts, beetles, cockchaffers, and fruit constitute its favourite food.

70. *DENDROCITTA SINENSIS*, Latham.

Confined to the lower Himalayas. Abundant in all cultivated districts, frequenting the neighbourhood of villages; cry, loud and discordant: food, insects and fruit.

71. *PSILORHINUS OCCIPITALIS*, Blyth.*Pica erythrorhyncha*, Vigors.

Pretty common on the ranges around Simla and Kussowlee, and to the westward until replaced by the *P. flavirostris* of Blyth. The habits of this bird resemble the Magpie. The presence of a Cheetah or a bird of prey is often discovered by the chattering of these beautiful creatures.

72. *PSILORHINUS FLAVIROSTRIS*, Blyth.

On the mountains around the Valley of Cashmere, particularly on the banks of the Jhelum between the valley and the plains of India.

73. *GARRULUS GULARIS* (Gray).

A truly Himalayan bird, and is common in the lower ranges: cry, loud and harsh; habits assimilate to the European species.

74. *PARUS CINEREUS*, Vieillot.

India and Himalayas, abundant; replaces the Greater Tit of Europe in these countries. Solitary.

75. *PARUS XANTHOGENYS*, Vigors.

Confined to the Himalayas; not common; gregarious.

76. *PARUS MELANOLOPHUS*, Vigors.

Gregarious, and more common than the last, and more generally

distributed over the Himalayas. Confined to the mountains; seen often with the Golden-crested Wren (*Regulus cristatus*, Ray).

77. PARUS — ? \*

The following Tit I shot in a flock of the last species near Simla, W. Himalayas. Confined to the mountains. Crested; length about 5 inches; iris brick-coloured; bill like Cole Tit and bluish black; forehead and below ear-coverts a dirty white; all upper parts, including wings and tail, leaden ash; breast, belly, and vent ochreous white; tail moderate and slightly forked; legs leaden-coloured, and claws the same. Specimen a male. I never saw this species afterwards.

78. DORITES ERYTHROCEPHALUS, Vigors.

Not uncommon around Murree on the Himalayas: confined to these regions; frequents pine forests, and often seen mixed up with *P. cinereus*, *melanolophus*, or the next species.

79. ÆGITHALUS FLAMMICEPS (Burton).

W. Himalayas, not common. Seen frequently with the Tits, and in habits exactly similar.

80. ACRIDOTHERES TRISTIS (Linnæus).

India and W. Himalayas to the limits of cultivation.

81. ACRIDOTHERES GINGINIANUS (Latham).

Frequents the banks of the Indus in Scinde. Habits closely resembling those of the last species. Not seen in the Punjab or Himalayas.

82. STURNUS VULGARIS, Linnæus.

Abundant all over northern India, Cashmere, and Himalaya.

83. STURNUS, sp. ?

Very common in Cashmere, Scinde, and Punjab. Rather smaller than the Starling. Bill yellow; feathers of the body long and narrow, uniform metallic black shaded with green and purple, particularly on the neck and breast; rump-feathers thick, and obscurely tipped with white; tail rather short and forked; legs brown, claws strong and curved. Frequent in the plains of India, the jungles, and cattle pastures, often associating with the *Acrid. tristis*. They breed in Cashmere, and build their nests in the decayed chunar trees in the valley. Nest composed of dried grass, wool, and feathers. "This bird, if not identical, is very like *Sturnus unicolor*."—Blyth.

84. STURNIA PAGODARUM (Gmelin).

Common on the Cashmere mountains, not seen in the plains of

\* Evidently *Parus dichrous*, Hodgs., which has hitherto been found only in Nepal.—F. M.

India. Solitary in its habits ; is shy and timid ; cry, loud and harsh. Food, seeds or the buds of Coniferæ. Iris *white*.

85. PASTOR ROSEUS (Linnæus).

Very gregarious, and abundant during the harvest months in the Punjab, and destructive in barley fields ; whole districts have been devastated by this bird. Not seen on the Himalayas ; common around Poonah in the Deccan. It is seen often associating with *Acrid. tristis*.

86. PSARAGLOSSA SPILOPTERA (Vigors).

Not uncommon in the W. Himalayas ; frequents rice-fields or sides of mountain streams. Iris *white*. Shy and timid in habits.

87. PLOCEUS BAYA, Blyth.

Gregarious ; abundant in the Deccan, particularly near Poonah, but is less so in Upper Bengal and the Punjab.

88. MUNIA UNDULATA (Latham).

89. MUNIA MALABARICA (Linnæus).

90. ESTRELLA AMANDAVA (Linnæus).

Generally distributed over India. The *undulata* and *amandava* are perhaps the most common ; they live in little societies, are tame and easily caught ; they are the common cage-birds of India.

91. PASSER INDICUS (Jard. & Selby).

The House Sparrow is more widely distributed than any species found in Hindostan : it is found all over India, and northward even on the steppes of Chinese Tartary. In every village and town of Hindostan it swarms in countless thousands, and is the same dirty noisome bird as we find in the streets of London. During summer evenings in Cashmere they assemble in vast flocks on the chunar trees, accompanied by myriads of Jackdaws and Maina birds (*Acridotheres tristis*) ; their rough *calls*, mixed with the chirpings of the sparrows, are anything but pleasant. In the wild and barren Ladakh the Sparrow lives and dies under the roofs of the rude inhabitants of that desolate and dreary land. I recollect, when travelling in that country, we came to an assemblage of Tartar huts after a long and fatiguing march of twenty miles ; not a symptom of animated nature was visible : long we waited at the doorway of a miserable little hut ; but no natives made their appearance : at last a chirp was heard, and a Sparrow flew out of the hovel : this little fact was convincing ; for the Sparrow loves man—"The place is inhabited ;" and so it was. A short time afterwards a flock of goats and sheep were seen winding down the glen ; and we were soon surrounded by crowds of wondering Tartars.

92. PASSER CINNAMOMEUS, Gould.

On the lower and middle regions of the W. Himalayas. Fre-  
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quents the wooded copses, and is common around the hamlets in the Valley of Cashmere. More shy and wary than the last, with which it does not associate: its cry is very different.

93. *MONTIFRINGILLA NEMORICOLA* (Hodgson).

Strictly a Himalayan bird; is plentiful at high elevations at all seasons, and feeds around the margin of melting snow. Generally seen in large flocks, flitting from place to place like Snow Buntings. As winter advances, they migrate southwards, and are found on the lower ranges. The chirp is like the Snow Flake (Nanee), and flight exactly similar.

94. *MONTIFRINGILLA HÆMATOPYGIA*, Gould, P. Z. S. 1851, p. 115.

Found in Ladakh, common on the mountains around the Choumeraree Lake; I did not see it on the ranges southward. Its flight is strong and rapid. Feeds on the seeds of a species of wormwood, which grows plentifully around the lake.

95. *MONTIFRINGILLA ADAMSI*, Moore, MS.\*

Mountain Finch.

Common on the bare and barren mountains of Ladakh and Little Tibet, and feeds on the seeds of the few plants found in these desolate and dreary-looking mountains. Its cry is like that of a Lark; and its habits on the ground are very similar. The nest is composed of grass, and generally placed in the long dykes built by the Tartars over their dead, so frequently to be seen in that country. General texture of the plumage lax and soft. Size of the Chaffinch. Iris hazel. Bill perfectly conic, the commissures considerably sinuated and lobed in the middle. Nostrils basal. Head and back greyish-ashy; three first wing-quills nearly equal; quills black, having the secondary quills broadly tipped with white. Wing-coverts white, tipped with black; last feather of the wing-quills like the head and back. Tail moderate and rounded, having the upper feathers black, and the under white tipped with black. Lower parts greyish-white, with an obscure black mark on the neck. Lower extremities black; hind toe and claw much longer than the lateral toes, which are about equal.

96. *CARPODACUS ERYTHRINUS* (Pallas).

Scinde, not common; lower ranges of the Himalayas; Cashmere; cultivated districts of Ladakh. Pretty common; seen generally solitary or in small flocks. Habits resemble Linnets.

*Note.*—On the Peer Pinjal ranges of Cashmere I saw a species of Finch larger than the above, with the red on the body more brilliant, particularly on the throat and breast. I was inclined to think it was the *Carp. rhodochrous*, Gould.

\* Sir William Jardine considers this a new species allied to *M. gebleri*.

97. *CARDUELIS CANICEPS*, Vigors.

Strictly Himalayan, and inhabits all the western ranges from the lower mountains to the limits of cultivation, but only a winter visitor in the ranges next the plains of India. In Cashmere common. Its song is sweet, and exactly similar to its European congener.

98. *HESPERIPHONA ICTERIOIDES* (Vigors).

Common in the dense pine forests of Cashmere. Feeds on cones, fruits, and tender shoots of trees. Generally seen in flocks, but oftener in pairs. Flight rapid and strong. The loud wailing cry of this bird is frequently the only sound heard to break the stillness of a Himalayan forest.

99. *LINOTA* — ?

Abundant in Ladakh only. In habits and appearance bears a likeness to the Grey Linnet\*; gregarious, and frequently seen with the *Montifringilla hæmatopygia* (Gould). Total length  $5\frac{1}{2}$  inches. Bill livid; eye small; iris hazel, size of Redpole; upper plumage greyish brown, with darker streaks of brown; wing-quills black, margined with white; wing-coverts light brown; tail forked, with edges of quills streaked with brown or white; legs nearly black, lower parts dirty greyish white.

100. *EMBERIZA STEWARTII*, Blyth.

*Emberiza caniceps*, Gould, Birds of Asia, 1854.

Very common on the ranges around Cashmere, but not seen eastward: frequents fields, and in its habits exactly similar to the Yellow Bunting: confined to the mountains.

101. *EUSPIZA LUTEOLA* (Latham).

Very common during the harvest season on the Punjab, and gregarious. Its song is sweet and melodious, and somewhat resembles that of the Goldfinch.

102. *EUSPIZA LATHAMI* (Gray).

A solitary bird, scarcely ever seen otherwise: common in the Punjab and lower Himalayas.

103. *EUSPIZA SIMILLIMA*, Blyth.

Gregarious and common around Poonah in the Deccan. Not seen in the Punjab or Himalayas.

104. *PYRRHULA ERYTHROCEPHALA*, Vigors.

Confined to the Himalaya ranges. Never seen in the plains of India. By no means common anywhere. Its habits exactly similar to the *P. vulgaris*; but its call-note is not so loud. Frequents dense jungle.

\* Mr. Gould names my specimen (a young bird), of *L. brevirostris*. Sir William Jardine is disposed to consider it identical with *L. montium*, Linn. (see Moore, P. Z. S. 1855, p. 217).

105. PYRRHULA AURANTIA, Gould, P. Z. S. 1858, p. 222 ; Birds of Asia, 1858, pt. x.

Orange-coloured Bullfinch.

Seen only on the Cashmere Ranges ; usually in small flocks in lonely places. Call-note more like the chirp of the Greenfinch than the clear call of the *P. vulgaris*.

*Male*.—Bill black. Total length 5 inches. A black band surrounds base of bill, eyes and chin. Crown of head, neck, breast, belly, back, and edges of wing-coverts a rich orange. Tail, wing-coverts, except their edges, glossy crow-black. Rump pure white ; the colour of the back is less rich than on the other parts, and fades towards the vent, which is white. Legs light brown. Iris black.

*Female*.—Has the black circle round the bill. Head and neck ash-coloured, like the female of *vulgaris*. Back slightly tinged with orange on an ashy base ; the tips of the wing-coverts the same. Lower parts like the male, but much less brilliant, and approaching to olive.

106. PYRRHULAUDA GRISEA (Scopoli).

Poonah, Deccan, very common ; less so in the Punjab ; not seen in Scinde.

107. FRINGILLA RUBRIFRONS (Gould) \*.

Very common in all the wastes and valleys of Ladakh. Its favourite food in summer is the seeds of a species of *Artemisia*. Often seen in the Punjab towns as a cage-bird imported from Ladakh and Afghanistan.

108. MELANOCORYPHA TARTARICA ?, Pallas †.

A common cage-bird in Cashmere and the northern towns of the Punjab. I have not seen the bird in a wild state ; but natives say it is brought from Afghanistan. It is nearly the size of the Redwing. Bill strong and thick. Colour of plumage like the Skylark, except a broad black band across the chest. Its song is sweet and melodious, and is more powerful and as much varied as the *Al. arvensis*.

109. ALAUDA ARVENSIS ?, Linnæus.

A winter visitor on the lowest ranges of the Western Himalayas ; at all seasons in Cashmere and cultivated districts of the interior. I think it identical with the British species ; however, it does not appear to moult so high or remain so long on the wing. Perhaps found in the Punjab during winter.

*Description*.—Length 6 inches. Upper parts lark-brown, spotted deeply with black ; white streak over eyes ; throat dirty white ;

\* ? *Metoponia pusilla* (Pallas). Syn. *Fringilla rubrifrons*, Hay (see Catal. B. Mus. E.I.C. ii. p. 494. no. 754).—F. M.

† This is *Melanocorypha torquata*, Blyth (see Catal. B. Mus. E.I.C. ii. p. 470). The *Mel. tartarica* of Pallas inhabits Northern Asia and North-eastern Europe.—F. M.

breast obscurely spotted with black. Lower parts dirty white. Inner surface of wings French white; first quill exceedingly minute; second nearly as long as the third and fourth, which are equal, and the longest secondary quills emarginate. Tail forked, outer feathers having their margins white. Legs light brown. It follows up the valleys leading from Cashmere; and wherever cultivation extends and luxuriant pasture abounds, there the Lark is seen. I found it at Dras in Ladakh, but afterwards lost sight of it owing to the barren state of the country northwards.

110. *GALERIDA CHENDOOLA* (Franklin).

This is the most common species of Larks in India, and is as much a bird of the desert as of the field. Scinde, cultivated or in the desert; parts of Punjab, very common, gregarious during winter.

111. SAND LARK.

Abundant on the banks of the Indus and Northern Scinde. Size of the Grey Linnet. Colour a sandy brown. Bill short and nearly conical; hind claw long and curved; tail moderate and slightly forked, the upper feathers of which are black; otherwise similarly marked to the last species.

*Note.*—On the lower Himalayan Range I saw on one occasion a species of Lark or Titlark of the size of the *Alauda arvensis*: colour of body was a sandy brown; but very distinguishing marks were a black throat, and streak round the eyes of the same colour. The female was not so distinctly marked.

112. *ANTHUS RUFULUS*, Vieillot.

A common and generally-distributed species all over India and the cultivated districts of the Western Himalayas.

113. *ANTHUS TRIVIALIS* (Linnæus).

Very common on the lower Himalayan Range.

114. *ANTHUS AGILIS*, Sykes.

Common around Poonah in the Deccan; Northern Punjab. Gregarious during winter in the latter country. Less abundant on the lower Himalayan Range.

115. *ANTHUS* — ?

Frequents the furze country in Ladakh. Its call-note resembles the Siskin. Size of a Black Redstart. Iris hazel. Bill notched, broad at the base and thin; upper mandible overlaps the lower; nostrils slit, culmen almost straight. Upper parts brown, striated like the *Anthus trivialis*; throat and neck mouse-brown; a broad rufous band across the breast; belly and lower parts dirty white, mixed with the brown of the back; legs light brown; tarsus slender; feet well-formed; lateral toes almost equal; hind claw well-developed.

Except the band across the breast, this bird is very like the common Himalayan Pipit, *A. trivialis*. Builds a nest like the Yellow Bunting; eggs similar.

116. *MOTACILLA MADERASPATANA*, Briss.

Poonah, rare, and not seen elsewhere.

117. *MOTACILLA DUKHUNENSIS*, Sykes.

Very common at Poonah and in Scinde, less so in the North-west Provinces; not seen at Peshawur.

118. *MOTACILLA LUZONIENSIS* (Scopoli).

Punjab (Peshawur), very common during the winter months. Not seen in the Deccan or elsewhere.

119. *MOTACILLA BOARULA*, Linnæus.

Only met with in Cashmere and its surrounding mountains; common.

120. *BUDYTES CITREOLA* (Linnæus).

Deccan, Scinde, Punjab, common.

121\*. *BUDYTES VIRIDIS* (Scopoli).

India, Punjab, very common, often gregarious.

122\*. *BUDYTES MELANOCEPHALA*, Sykes.

Very common in lower Scinde during the cold months; not seen in the Punjab or Himalayas.

123. *MALACOCERCUS MALCOLMI* (Sykes).

Common at Poonah; Scinde (banks of Indus); not Punjab or Himalayas.

124. *MALACOCERCUS CAUDATUS* (Duméril).

Scinde and Punjab, common.

125. ? *TROCHALOPTERON* —.

Bush Thrush ??

Length  $3\frac{1}{2}$  inches; tail 5 inches. Bill black, curved, with two bristles diverging backwards from the gape; feathers of forehead stiff; upper parts brown; lower parts dirty-white, more or less tinged with brown; wings short, rounded; legs long; feet large; tail worn at the tips and much graduated.

*Habits.* Frequents bushy places, and, like its genus, seen in small

\* "These are identical; the birds acquiring blue-grey feathers on the head at the vernal moult, which change afterwards to black. The name *B. viridis* must be retained for the species." (Blyth, Cat. Mus. As. Soc. Calc. Appendix, p. 325.)  
—T. J. M.

flocks ; flies feebly, and emits a tittering call. This species is common on the Himalayan Range, near Simla.

126. *PRINIA* OR *DRYMOICA*.

This little bird is common in the Deccan and Scinde ; frequents hedges and fields of grain : an active, restless creature, continually jerking its tail up and down when on the move. Searches for insects among the dense foliage of mango and other trees. Call, loud and very like the sound produced by the rasping of a file.

127. ? *PRINIA* —, sp.

Size of Long-tailed Tit. Bill short and black ; legs long and slender ; tail graduated and long, first quill minute, second nearly as long as the third. In appearance and plumage resembles in some degree the Willow Wren ; the upper parts are exactly similar ; the tail is soft and readily moveable, tipped with white, conspicuous when the bird is on the wing, or when jerking the member ; cheeks, throat, and breast whitish-yellow ; belly and vent white, tinged with yellow ; tarsus and feet yellow. Common in the fields around Poonah, Deccan.

128. *PRINIA SOCIALIS*, Sykes.

General characters the same as the last. Frequents like situations. Total length about  $4\frac{1}{2}$  inches. Bill slender, black ; nostrils slit-like ; head, back part of neck, and back leaden-blue ; wing-feathers brown, their outer margins tinged with reddish-brown ; tail brown, having the tips of the longest feathers barred with obscure black ; throat, cheeks, breast, belly, shoulders, and vent ochreous-white, the yellow tinge being more distinct on the sides of the belly and the legs. Frequents fields of Badgeree in the Deccan, where it may be seen often perched on a stalk of grain, emitting its loud rasping call, which might be mistaken easily for that of a much larger bird. It is as common as the last species. Not seen in Scinde.

129. ? *PHYLLOSCOPUS* — ?

Very closely allied to the last ; in habits and general appearance the same. Generally seen in pairs, or three at a time. Common in Scinde and Punjab, frequenting gardens and fields of grain. Same size as last. Bill weak and narrow, with a few diverging bristles at the base, colour brown ; head, neck, and back olive-brown ; wings short and rounded and margined with rufous ; tail brown, beneath paler ; an obscure white streak passes over the eye ; throat and lower parts white, with an ochreous tinge on the belly and vent ; legs pale. Description taken from a male.

130. *PRINIA HODGSONI* (Blyth).

Punjab and lower Himalayas, common. Frequents bushes and hedges by waysides.

## 131. ORTHOTOMUS LONGICAUDA, Gmelin.

Frequents the mango and other trees in the Deccan ; flits among the dense foliage in quest of insects. Cry loud and rasping. I have frequently mistaken its call for that of the Common Mina (*Acridotheres tristis*) ; so loud and powerful is it : unless by its cry, it is not easily discovered ; for its motions are noiseless.

## 132. ? PRINIA —, sp.

Bill straight ; nostrils covered with a delicate membrane. Size of last species. Plumage lax, upper parts olive-brown, assuming more of a rufous colour on the head and forehead ; a small black spot on each side of the bill close to the eye ; throat black ; rest of lower parts ochreous ; tail moderate, much worn ; wings short and rounded ; lower extremities rather large ; a broad pad at the root of hind toe ; iris red. Frequents the apricot and other trees on the lower Himalayan Range ; not common or seen elsewhere. Its habits are much like those of the *Prinia*.

## 133. PTEROCYCLUS LINEATUS (Vigors).

Syn. *Cinclosoma setifer*, Hodgson.

Frequents bushy places ; very tame, and allows one to approach within a few yards ; flies from bush to bush with a fluttering feeble flight. Pretty common on the lower Himalayan Range.

## 134. TROCHALOPTERON RUFUGULARE (Hodgson).

Frequents like situations with the last. Common on the lower Himalayan Range, and around the vale of Cashmere.

## 135. PYCTORHIS SINENSIS (Gmelin).

Syn. *Timalia hypoleuca*, Frankl.

Tamarisk jungles of Scinde, common. Gregarious ; flight broken and irregular ; flits from bush to bush.

## 136. LANIUS LAHTORA, Sykes.

Bombay, Scinde, Punjab, Lower Himalayas : common, but more abundant in the first three countries.

## 137. LANIUS SUPERCILIOSUS, Linnæus.

Bombay, Scinde and Punjab, but nowhere common, and generally solitary. The differences of plumage of sexes are very great.

## 138. LANIUS HARDWICKII, Vigors.

Very common at Poonah ; less so in Scinde. I never saw it on the Western Himalayas. The rufous of the lower parts of the male becomes very brilliant during the breeding-season.

## 139. LANIUS CANICEPS, Blyth.

Deccan, Scinde, Punjab, and lower Himalayas, common.

140. *LANIUS TEPHRONOTUS*, Vigors.

Very common in the Valley of Cashmere; not seen elsewhere. Very like the last species.

141. *LANIUS KEROULA* (Gray)\*.

Seen only on the Western Himalayas, where it is not common. Frequents gardens, and hunts around the houses of the natives.

142. *PITTA TRIOSTEGUS*, Sparmann.

Island of Elephanta, Bombay, and occasionally in the N.W. provinces of India.

143. *HYDROBATA CINCLUS* (Linnæus).

Vale of Cashmere and streams in Ladakh: seen only in these situations; does not frequent the lesser ranges.

144. *HYDROBATA ASIATICA*, Swainson.

*Cinclus Pallasii*, apud Gould.

Common on the streams in the lower and middle regions of the Western Himalayas, and likewise in Ladakh. Both this and the last species are truly Himalayan birds.

145. *TROGLODYTES NIPALENSIS*, Hodgson.

Among stony places, in glens, and around the margins of avalanches on the Cashmere Ranges; common.

146. *ENICURUS MACULATUS*, Vigors.

Common on the streams of the lower and middle Himalayas.

147. *ENICURUS SCOULERI*, Vigors.

Lower Himalayan Ranges; Cashmere. Its habits bear a close resemblance to the last. It sports around mountain-streams and water-falls in search of insects. Both species are very active in their habits.

148. *MYIOPHONUS TEMMINCKI*, Vigors.

Pretty common on the streams of the lower Himalayas; frequents shady places. Note musical, slow and measured, like the Blackbird, but softer. Its food consists of insects and larvæ. The nest is built like the Blackbird's, and generally placed on the bare shelf of a rock overhanging a mountain-torrent.

149. *TURDUS VISCIVORUS*, Linnæus.

Lower and middle regions of Western Himalayas, common; forests of Cashmere, plentiful.

\* This is *Tephrodornis pondiceriana* (Gmel.). See Catal. Birds, Mus. E.I.C. i. p. 169.—F. M.



150. *TURDUS UNICOLOR*, Gould, P. Z. S. 1837, p. 136.

*Turdus schistaceus*, F. Moore, MS.

Cashmere Song Thrush (mihi).

Hitherto rare in collections. Seems confined to Cashmere and the surrounding ranges; very plentiful in the valley; and in habits bears a striking resemblance to the Mavis. Its song is composed of few notes, little varied, and often repeated. They build in the pine and apple trees. There is some considerable variety in the colour of the plumage, some being darker than others; and the sexes differ in the male not having any indication of spots on the neck and throat. Description of a perfect female as follows:—Size of Redwing. Bill pale yellow, margins of eyelids the same; upper parts leaden-ash, quills dusky; throat obscurely spotted with black; breast and lower parts ashy-white. Lower extremities pale yellow; tail dusky; inner surface of wings ochreous-yellow.

151. *TURDUS ATROGULARIS*, Natterer.

Common all over the lower Himalayan Ranges during the winter months; seeks the dense forests of the middle regions during summer, where it breeds.

152. *TURDUS* ?

Common in gardens and ploughed fields in the Valley of Peshawur during the cold months. Mr. Gould considers my specimen a variety of *T. atrogularis* (Natt.); this I think is doubtful; I believe it to be a distinct species. Sir William Jardine says, "I have examined your thrush; unless a small or local variety of *T. atrogularis*, it is distinct." I have seen *T. atrogularis* in the above locality, but never associating with the other. Total length 9 inches. Upper parts olive-brown; throat and front of neck dirty-white; the sides of the neck and breast are thickly spotted with olive-brown; belly and lower parts dirty-white; legs light brown.

153. *MERULA VULGARIS*, Ray.

A common cage-bird in the towns of the Punjab; said to be imported from Afghanistan. Not a native of the Western Himalayas; as far westward as Peshawur, but probably found on the Hindoo Coosh Chain?

154. *PALEORNIS ALEXANDRI* (Linnæus).

Subhimalayan Ranges and country between Lahore and the Sutlej; pretty common, but not nearly so common as the next.

155. *PALEORNIS TORQUATUS* (Brisson).

India and lower Himalayas, very common. I have seen it pillage the nests of the Sand Martin. Its flight is exceedingly rapid; they occasionally tumble when on the wing, like the Tumbler Pigeon.

156. *PALÆORNIS SCHISTICEPS*, Hodgson.

In habits resembles the last. Its favourite food is seeds of wheat, apricots, and pomegranates; very noisy and gregarious. Confined to the lower ranges of the Western Himalayas.

157. *PALÆORNIS CYANOCEPHALUS* (Linnæus).

Island of Elephanta, Bombay, common; Subhimalayas, very common. Nest like that of the Wood Pigeon; eggs two, white. The female has no red spot on the carpus; and the head and neck are slate-coloured. These last three species may be seen frequently in flocks and mixed up with one another. On wing it is difficult to distinguish the species; but the tail furnishes a ready key: the *schisticeps* has the tip yellow, *cycanocephalus* white, and *torquatus* uniform green.

158. *PETROCINCLA CYANEA* (Linn.).

India and Western Himalayas, Ladakh, and Chinese Tartary; solitary in its habits, shy. I never heard it utter the simplest note or song. There is great diversity of plumage in the sexes. Frequent dreary wastes and rocky places; often seen among the dykes and cairns raised by the natives of Ladakh for religious purposes. Food, insects.

159. *THAMNOBIA FULICATA* (Linn.).

Plentiful in the Deccan; pretty common on the Punjab and lower Himalayan Range. The habits and haunts of this little warbler are very similar to the English Redbreast. Its nest is built in banks; the young are a uniform light brown until the first moult.

160. *COPSYCHUS SAULARIS* (Linnæus).

Common around Poonah in the Deccan, frequenting groves and orchards; pretty common on the Western Himalayas. Its song is loud, sweet, and melodious. Habits solitary.

161. *SAXICOLA PICATA*, Blyth.

Common in Scinde, frequenting gardens; seen frequently in the Punjab, but not on the Western Himalayas.

*Note.*—I saw on two occasions a species of *Saxicola* in the barren country of Ladakh. About the size of the Winchat; the upper parts were a dark blue; breast black; belly and lower parts white. The species is not uncommon on the banks of the Dras River.

162. *SAXICOLA ATROGULARIS*, Blyth.

Common in Scinde and the Punjab, frequenting the arid plains of these countries; not uncommon in the Valley of Cashmere. Its favourite food is a sort of white worm, abundant in dry sandy places.

163. *CYANECULA SUECICA* (Linnæus).

Punjab; around Peshawur: common. This pretty little warbler is common in the mustard fields of Scinde.

164. *RUTICILLA ERYTHROGASTRA*\*, Gldst.

Seen only in Ladakh; I scarcely think it is a native of any part of Hindostan. Its favourite haunts are in fields, or by the sides of mountain streams; common near Leh.

165. *RUTICILLA INDICA*, Blyth.

Deccan; Scinde; not observed in the Punjab or on the Himalayan Ranges bordering the plains; pretty common in the Valley of Cashmere, and most plentiful in the barren country of Ladakh. As the bird is subject to considerable variety, I am inclined to think *R. phœnicuroides*, Moore (P. Z. S. 1854), is only a variety.

166. *RUTICILLA FULIGINOSA* (Vigors).

Common on the mountain streams on the lesser Himalayan Range and around the Vale of Cashmere; generally seen with the next species.

167. *RUTICILLA LEUCOCEPHALA* (Vigors).

Confined to the Himalayan Mountains. It delights to sport after insects by the side of the mountain torrent.

168. *CALLIOPE CYANA* (Hodgson).

Seen only on the ranges around the Valley of Cashmere; not common. Its habits greatly resemble the Redbreast. Frequents woods and forests.

169. *CALLIOPE PECTORALIS*, Gould.

Frequents high elevations, among rocks and precipices. Pretty common on the Pir Pinjal Ranges of Cashmere; not seen elsewhere.

170. *PRATINCOLA INDICA*, Blyth.

India and Western Himalayas, common.

171. *ERYTHROSTERNA LEUCURA* (Gmelin).

In appearance and habits bears a very close resemblance to the British Robin. I have not heard it sing; its call-note is Robin-like, "creek creek." Pretty common in the jungles of the Salt Mountains of the Punjab and lower Himalayan Ranges.

172. *NILTAVA SUNDARA*, Hodgson.

Not uncommon in the jungles of the lower Himalayan Ranges. Its habits greatly resemble the last species. Song composed of one loud and simple note, frequently repeated.

\* The female of which is *R. Vigorsii*, Moore, P. Z. S. 1854, Aves, pl. 60.—F. M.

## 173. STOPAROLA MELANOPS (Vigors).

Generally seen single; common on the lower Himalayan Ranges.

## 174. HEMICHELIDON FULIGINOSA, Hodgson.

Has much the same habits as the true Flycatcher; frequenting woods and forests, it sports from branch to branch after insects. Not uncommon in the forests near Simla.

*Note*.—Closely allied to the above, both in appearance and habits, is a species I found pretty common among the tall poplar and chunar trees in the Valley of Cashmere. Total length  $4\frac{1}{2}$  inches. Bill triangular, half the under mandible is a light yellow; nostrils oval; tips of bill slightly bent downwards; eyes large, black, a faint white ring round the eye. Upper parts dark olive-brown; tail moderate and slightly forked, first quill spurious, second and third longest. Lower parts lighter-coloured than the back, and on the neck and belly mixed with white. Legs short and black; claws fully curved; inner toe slightly shorter than the outer; wings brown, with inner surfaces a faint rufous colour, giving the wings an appearance of transparency when the bird is flying. They are common in the valley, frequenting the tops of lofty trees, where they hunt after the manner of the true Flycatcher. Their favourite food is a white insect which swarms around the tops of the chunar and other trees. Their note is a loud chirp, like that of the Spotted Flycatcher. The description was taken from a male.\*

## 175. ACROCEPHALUS ARUNDINACEUS (Linn.).

Abundant on the lakes and fens in the Valley of Cashmere.

## 176. PHYLLOSCOPUS NITIDUS, Blyth.

Deccan and Scinde, common; frequents woods and groves. Its note is low, sweet, and varied.

## 177. PHYLLOSCOPUS TROCHILUS (Linn.).

Deccan, Scinde, and lower Himalayan Ranges, common.

## 178. PHYLLOSCOPUS TRISTIS, Blyth.

Deccan, Scinde, and N.W. Bengal, common.

## 179. REGULUS CRISTATUS, Ray.

Forests of the middle regions of the Western Himalayas and around Cashmere; pretty common. Seen generally with the *Parus melanolophus*.

## 180. SYLVIA CURRUCA (Gmelin).

Furze and bushy places in the Valley of Cashmere, common.

\* I am inclined to consider this a young bird of *H. fuliginosa*. There is no material difference, except in being spotted—the case with the young of Flycatchers in general.—A. L. A.

181. *TICHODROMA MURARIA* (Linnæus).

Punjab, frequenting the ravines and broken-up country north of the Jhelum; common in the Valley of Cashmere, and on the lower Himalayan Ranges. The sexes are alike in colour of plumage.

182. *SITTA HIMALAYANA*, Jardine & Selby.

Lower and middle regions of the Western Himalayas, pretty common.

183. *PERICROCOTUS FLAMMEUS* (Forster).

N.W. Punjab, Western Himalayas, Cashmere; common, gregarious. Flocks of one or the other sex are often seen; and generally more females are observed than males, the ratio about three of the former to one of the latter. The call-note resembles that of the Linnet.

184. *PERICROCOTUS PEREGRINUS* (Linnæus).

Common in the gardens and orchards around Poonah in the Deccan; not seen on the Himalayas. They are generally observed in small flocks.

185. *HIRUNDO FILIFERA*, Stephens.

Common in the Deccan, not seen in Scinde; not common on the lower Himalayan Ranges; occasionally seen in the Valley of Cashmere.

186. *HIRUNDO RUSTICA*, Linnæus.

Vale of Cashmere and lower ranges westward of the Jhelum river. Migrates to the Punjab during the winter months, but breeds and spends the summer in the mountains. A specimen compared with an English bird, and found identical.

187. *HIRUNDO DAURICA*, Linnæus.

Punjab and Himalayas, common; migrates during the winter to the former locality. Breeds among high rocks; the nest is oblong, and composed of mud and feathers intermixed; has generally two or more openings.

188. *CHELIDON CASHMIRENSIS*, Gould, P. Z. S. 1858, p. 356.

Common on the rocky banks of the rivers in Ladakh and Cashmere during the summer; migrates during the winter (perhaps) to the Punjab and India.

“Considerably smaller than *C. urbica*, but of precisely the same form and colour, except that the axillaries and under part of the shoulder are dark brown instead of greyish-white; the feathered tarsi occur in both species; crown of the head, back, and shoulders black, with steel-blue reflexions; tail brownish-black; throat, under surface, and rump white, stained with brown on the flanks. Total length  $4\frac{5}{8}$  inches; wing  $3\frac{7}{8}$ ; tail 2; tarsi  $\frac{7}{16}$ .”

189. *COTYLE RIPARIA*, Linnæus.

Common on the Indus and rivers of the Punjab.

190. *COTYLE* — ?

Punjab, particularly on the lakes near the Salt Range ; often seen associating with *Hirundo filifera* and *H. daurica*.

Sir William Jardine says, "Your bird is not *C. sinensis* (Gray). I have authentic specimens of the latter ; they differ in size : *sinensis* is larger ; and the rump, instead of being pale, is uniform with the colouring of the back. Total length only  $4\frac{1}{2}$  inches. Iris hazel, all the upper parts uniform brownish black ; wings as long as the tail ; tail moderate and nearly even ; throat dirty white ; an irregular brownish-black band across the breast ; belly and vent white ; tail brownish black ; tarsus almost naked, with only a few downy feathers posteriorly ; colour of tarsus black."

191. *DICRURUS LONGICAUDATUS*, A. Hay.

India and wooded districts of the W. Himalayas, common. Builds on trees ; the nest is elegantly built, and resembles that of the Chaffinch in size and construction ; the eggs are nearly as large as a Blackbird's, and white, with light-brown spots. Iris *red*.

*Note*.—Another species or variety, I once saw (and killed the individual) at Poonah, Deccan, in size resembled the above, but differed in the following particulars :—General appearance of plumage less brilliant ; tail not so lyrate ; belly, sides, and vent white ; inner wing-quills margined with white. I supposed at the time this was a young bird ; but subsequent experience leads me to think that, if not a variety, it may be a distinct species\*.

192. *TCHITREA PARADISI* (Linnæus).

Western Himalayas and Valley of Cashmere during summer ; India at all seasons ; pretty common. Frequents groves and dense jungles. Great variety of plumage ; all white birds are adult males ; of the brown varieties, the *females* have brown primaries, the *young males* have black primaries.

193. *LEUCOCERCA FUSCOVENTRIS* (Franklin).

Common around Poonah in the Deccan.

194. *LEUCOCERCA ALBOFRONTATA* (Franklin).

Scinde ; Western Himalayas, but on the lower ranges only.

195. *HYPSIPETES PSAROIDES*, Vigors.

Plumage of sexes alike. Very common in the thick jungles of the Cashmere Ranges, generally seen in small flocks.<sup>1</sup> Has great powers of flight ; shy ; call-note loud and harsh ; imitates the notes of other birds. Confined to certain districts on the Himalayas.

196. *PYCNONOTUS BENGALENSIS* (Blyth).197. *PYCNONOTUS HÆMORRHOUS* (Blyth), J. A. S. B. xiv.

\* ? *D. cærulescens*, Linn.—F. M.

198. *PYCNONOTUS BARBATUS*, Desfontaines (*P. leucotis*, Gould).

199. *PYCNONOTUS LEUCOGENYS* (Gray).

The Bulbuls have obtained more praise for their musical powers than they really deserve ; their notes are generally harsh, short, and often repeated ; they often imitate the songs of other birds. They are frequently domesticated, and taught a variety of tricks. In some parts of the Punjab I observed the natives were very fond of carrying the *hæmorrhous* and *leucogenys* about with them, tethered to the hand by a string. The *hæmorrhous* is the most widely distributed ; it is found all over the Deccan (but not in Scinde), and the cultivated districts of the lower Himalayan Ranges. *Bengalensis* and *leucogenys* are common on the lower Himalayas ; and although the former is abundant on the ranges around Cashmere, I never saw it in the valley. The latter is the only one of the genus found in the valley, and is very common ; its habits are domestic ; it frequents gardens and orchards. I have often, when sailing in an open boat on the river Jhelum at Serinuggar, been visited by this species ; it would perch itself on the side of my boat within an arm's length, quite regardless of the oarsmen and the splash of their paddles.

The *leucotis* I saw nowhere out of Scinde ; at Kurrachee and on the banks of the Indus it is common. Insects constitute the favourite food of the Bulbuls ; but they are likewise partial to fruit, and give a preference to mulberries. The call-note is a loud clanging chirp, uttered at short intervals. The *vents* of the young birds are light brown ; they have no *crests* until after the first moult.

*PYCNONOTUS JOCOSUS* is a common cage bird in the Deccan and Punjab ; but I have not seen it in a wild state. It is certainly rare in the Punjab and Western Himalayas.

200. *IORA ZEYLANICA*, Gmelin.

Deccan, abundant all over the wooded districts. Habits like the Tits ; frequents the densest foliage of fruit trees : food, insects. Not seen on the Western Himalayas or Punjab.

201. *ORIOLOUS KUNDOO*, Sykes.

Deccan, Scinde, lower Himalayan Ranges. Abundant during summer in the Vale of Cashmere. Call-note loud and harsh ; the song resembles that of the Blackbird. Iris *red*.

202. *ZOSTEROPS PALPEBROSUS*, Temminck.

Very common in the woods and jungle of the lower ranges of the Western Himalayas. In habits closely resembling the Tits ; very tame, and will often approach within a few feet of one, when searching for insects.

203. *ÆTHOPYGA MILES* (Hodgson).

Syn. *Nectarinia goalpariensis*, Jerdon.

Strictly Himalayan, not seen by me in the plains of India ; fre-

quents the dense jungles of the lower ranges; by no means common anywhere; generally seen solitary. Note soft, sweet, and musical; delights in sheltered and sequestered places.

204. *NECTARINIA ASIATICA* (Linnæus).

The varieties of this species are only immature birds. Deccan, Scinde, Punjab, and lower Himalayan Ranges, common: the song resembles that of the Chaffinch, is less strong, but more sweet and melodious: call-notes loud and various.

205. *NECTARINIA ZEYLONICA* (Linnæus).

Deccan (at Poonah abundant), not seen in Scinde, not common on the Western Himalayas. The nest is less than that of the Long-tailed Tit, composed of grass interwoven with dried leaves, and usually suspended from the point of a branch. Is frequently seen sucking the nectar from the flowers of the Cactus. The species is common in the gardens at Poonah in the Deccan: it does not subsist on honey only; for the gizzards of several species contained small insects.

206. *TRERON PHÆNICOPTERA* (Latham).

A summer visitor on the lower ranges and forests of the Western Himalayas. Feet *yellow*.

207. *PALUMBUS TORQUATUS* (Leach).

Common on the lower Himalayan Ranges and in the Salt and Suliman Mountains of the Punjab. The nuchal patch is frequently indistinct, and in all the specimens examined was of a buff-clay colour. Gregarious.

208. *COLUMBA LIVIA*, Brisson.

India and wooded ranges of the Western Himalayas, common.

*Note.*—Flocks of a pied variety were seen on the rocky mountains in Rupshoo Ladakh, having the rump and under surfaces of the wings *white*; tail with a broad white band across its middle, tip black: they were mixed up with flocks of the true species.

209. *COLUMBA LEUCONOTA*, Vigors.

Imperial Rock Pigeon of Europeans.

Inhabits the high and rocky ranges north of Cashmere near the confines of snow; seen frequently associating with *livia*. Iris yellow; flight strong and rapid. Plentiful in spring in the Valley of Wurdwun among the Cashmere ranges.

210. *TURTUR HUMILIS* (Temminck).

Deccan, Scinde, and Punjab, common; very plentiful in the Vale of Cashmere, and all over the lower ranges of the Western Himalayas.



## 211. TURTUR SURATENSIS (Latham).

Deccan and lower Himalayan Ranges, common.

## 212. TURTUR ORIENTALIS (Latham).

Western Himalayas, including Cashmere and Ladakh, common.

## 213. TURTUR SENEGALENSIS (Linnæus).

Deccan, Scinde, Punjab: not seen on the Western Himalayas.

## 214. PAVO CRISTATUS, Linnæus.

Commonly called "Mo-or" by the natives of the Punjab and lower Himalayan Ranges. Is very generally distributed over these parts; is held sacred by many *castes*, and accordingly well preserved. At Kullar Kuhar, among the Salt Mountains of the Punjab, there are several shrines where the Pea-fowl collect from the neighbouring jungles to be fed by the fakirs and religious devotees; there, at break of day, as the sportsman is clambering over the rough sides of the ravines in quest of Houriar (*Ovis vignei*), he will often be struck with the scene, as hundreds of male Pea-fowl, in all their native elegance and beauty, dash down the glens with a rapidity of flight unknown to the denizens of the English farm-yard. Many sportsmen ignore this species, and will not allow it a place in their game-list: it is true that in many localities they might be killed with little trouble; but among the dense and tangled jungles of the lower Himalayan Ranges it is found wild and wary.

## 215. CERIORNIS MELANOCEPHALA (Gray).

*Tragopan hastingsii*, Vigors.

Jewaz of the natives. Argus Pheasant of Europeans.

This very handsome and beautiful species is a native of the higher ranges of the N.W. Himalayas. Distant from the habitations of man, among the dense woods and jungles of the middle ranges, this shy and wary bird secretes itself. Generally seen in small companies of from three to ten or fifteen. It is nearly three times the size of the Colchican Pheasant. When alarmed, it utters a loud wailing cry of *uā, ā, ā, ā*, particularly at twilight; and the sportsman is often struck by its peculiar call long before he becomes acquainted with the bird. They run with great rapidity, and secrete themselves among the thick foliage, allowing the sportsman to approach within a few yards; indeed it is seldom, unless when hard pressed, they take to flight. Common on the wooded ranges N.W. of Simla, and Southern Pinjal forests of Cashmere.

## 216. GALLUS FERRUGINEUS (Gmelin).

*Gallus bankiva*, Temminck.

Sub-Himalayan jungles, but confined to localities; common near Simla, rare on the ranges south of Cashmere and westward of Jamoo.

217. *EUPLOCAMUS ALBOCRISTATUS* (Vigors).

Called Kallege, Kookera, Meerghée, by the natives. *E. melanotus*, Blyth, comes very close to this bird, but has not the white markings on the crest and back; yet the species is subject to variety; so much so, that it is questionable if Blyth's bird is a distinct species. Abundant on the ranges around Simla; not common on the Cashmere Ranges. This is the most common and widely distributed of all the Pheasants on the Western Himalayan Ranges. Unlike any of the other species, it is found from the Sewalik Range to the limits of forest. The average weight of the male is about 3 lbs.; the female about  $2\frac{1}{2}$  lbs.; young birds of the first year from  $1\frac{1}{4}$  to  $1\frac{1}{2}$  lb. The plumage of the young is like that of the female until the first moult. When a Kallege Pheasant is flushed, it utters a succession of short calls like the word "pink;" that of the young bird is harsher, and resembles the call of the *P. wallichii*, for which it is often mistaken. They spend the day in dense jungles, perching on trees at night, to which they often betake themselves when flushed. Their flight is strong and rapid; when on the ground, the male walks with the tail half erect, and spreading. The food consists of soft roots, acorns, &c.; the former they dig up with their bills, shuffling the earth with their feet like the domestic fowl. They run with great rapidity, and are very cunning: when roosting, they secrete themselves among the thickest foliage, and will not stir even when the sportsman may be within a few yards. Among their winged enemies are the Lämmergeiers, *Aq. nœvia*, &c. The Pine Martin (*Martes flavigula*, Bodd.) preys on the species, and eats its eggs; the latter are white, and about the size of the Bantams.

218. *CATREUS WALLICHII* (Hardwicke).

Native names: Cheer, Boóinchil, Herril.

Frequents the lower and intermediate regions of the Western Himalayas; is seldom found at very high elevations. A wary bird, cunning and vigilant, its favourite resorts are grassy hills, with scattered forests of oak or underwood: generally found in flocks of from four to twelve. They run fast, and when disturbed secrete themselves among grass, or take to trees, and keep so quiet that the sportsman may approach within a few yards; they are sometimes even knocked off their perch with a stick. The call-note or crow resembles the words "chir a pir, chir a pir, chir, chir, chirwa chir, chirwa." The food consists of grubs, insects, seeds and berries; I never found any grass or leaves in their gizzards. It is easily reared; but it seems doubtful if the species would stand the climate of Britain. The female makes her nest in the grass, or among low brushwood, and lays from 9 to 12 eggs of a dull white: the young are hatched about the end of May. The flight of this species is neither strong nor rapid; when roused, it utters a few loud cries, and flies only a short distance: the beautiful feathers of the tail are spread out during flight.

219. *PUCRASIA MACROLOPHA* (Lesson).

Local names, Coclass, Pocrass, Plach.

Is seldom found at any elevation under 5000 feet on the Western Himalayas; nowhere very common. On the Choor Mountain, near Simla, it is plentiful, and frequently found in the same jungles with the last two species: more solitary in its habits than either of the other two, and usually seen single or in pairs. Its call is composed of a few chuckles or low chattering sounds; the males crow at day-break; the call resembles that of a young domestic cock. Roosts in trees. Food various, composed of leaves, buds, roots, insects, seeds and acorns. The eggs are spotted like a Turkey's.

*Note.*—The Plach Pheasant, so common in the jungles of the Cashmere Ranges, I have not examined, but am inclined to think it is a different species; its *crow* is different.

220. *LOPHOPHORUS IMPEYANUS* (Latham).

The local names for this species are very various. The Cashmeres call the male "Lont," and the female "Ham." On the ranges around Mussoree the natives call the male "Ghur Monal," the female "Ratteeah Cowan" and "Monalee."

This splendid bird, once so abundant on the Western Himalayas, is now far from being so, in consequence of the numbers killed by sportsmen on account of its beauty; whole tracts of mountain forest once frequented by the Monal are now almost without a single specimen: however, its range is wide, and its haunts varied, so that it will be long before the species can be entirely exterminated. The Monal frequents the high regions of the Western Ranges, and lives among the oak forests, dense bamboo jungles, or craggy mountainsides. Its favourite food consists of roots and bulbs, particularly the wild strawberry, currant, earth-nuts, acorns, &c. Its eggs are a little less than a Turkey's, and similarly marked. The average weight of adult males is 6 lbs.; that of the females 5 lbs.: the young birds resemble the female until the first moult. Monal-shooting far eclipses anything of the sort, British or European; it calls forth all the energies of the sportsman. Scrambling over precipices, mounting over wooded slopes, or threading his way through tangled bush, these noble birds spring up before him, uttering their wild cry as they dash down the glens, refulgent in all their beauty and elegance of form. Among the most pleasant reminiscences of by-gone days is a period of eleven days spent by the author and a friend on the Choor Mountain, near Simla, when among other trophies were numbered 68 Monal Pheasants, 9 Plach, 4 Kallege, 1 Wood Partridge, Chuckor (*P. chukar*), and Solitary Snipe. The Bearded Vulture and Pine Martin (*M. flavigula*) are the greatest enemies of the Monal: the former kills the old birds; the latter destroys the eggs and young.

## 221. TETRAGALLUS HIMALAYENSIS (Hardw.).

Local name, "Jer Monal;" by the natives of Cashmere, "Gourka gu" and "Kubuk." Snow Pheasant of Europeans. Confined to the snowy ranges of the Western Himalayas, above the region of forest trees; is not universally distributed; plentiful in Koonawer, Cheenee, the high ranges of Cashmere, and Ladakh. In the summer months, as the snow melts, they migrate northwards; and during rigorous winters are often driven into the forests of the Middle Ranges. I have seen them on the Peer Pinjal Ranges, south of Cashmere, in July, but only on the tops of the highest peaks, 12,000 or 13,000 feet above the level of the sea. Generally seen in flocks of from twenty to thirty together by the margin of the melting snow: they are partial to these situations, where they feed on the tender shoots of plants just appearing above ground. In summer I have seldom met more than a pair together; indeed, on the ranges frequented by the bird during the winter months, not one is seen in June and July. The Golden Eagle and Bearded Vulture are great tormentors of this species: I do not think they destroy old birds; but the young fall an easy prey to them. They never perch on trees, but prefer rocks or eminences close to snow, where they are with difficulty seen even within 100 yards distance; their loud wailing cry, however, is heard far off. The tail is carried erect while on the ground; and their ungainly gait resembles that of a large Grey Goose. They always feed upwards towards the tops of the mountains, walking slowly. The species of wild *Primula* constitute their favourite food. The call is very various, something like the following: *whōō wit whit whit wit wit wit wēēt wēēt wēē*; it is a soft whistle. These birds are very tame, and approached without difficulty from below, as they fly always down the mountain when flushed, and seldom rise until the sportsman is within thirty yards. The flesh is not savoury, and frequently of a disagreeable flavour. Having seen the bird at all seasons on the Cashmere Ranges, I am inclined to think they breed there, although the majority migrate to Chinese Tartary in summer. A hardy species, and stands confinement well.

## 222. LERVA NIVICOLA (Hodgson).

Local, Quoir Monal. Snow Partridge of Europeans.

Frequents like situations to the last bird; but its haunts are more selected: it is less generally distributed; occasionally seen on the highest mountains forming the northern barrier of the Vale of Cashmere. Is very tame; when flushed emits a loud harsh whistle, and continues the call even when settled and out of danger. Its general appearance and habits very closely resemble the Snow Pheasant. The female lays six or eight eggs, and during incubation displays the same desire to draw away the attention of the sportsman as observed in the family generally.

## 223. PTEROCLES ARENARIUS (Pallas).

Punjab; N.W. Provinces of Bengal: common.

224. *PTEROCLES EXUSTUS*, Temminck.

Punjab ; N.W. Provinces of Bengal : common.

225. *PTEROCLES FASCIATUS* (Scopoli).

Pretty common in the low jungles around the base of the Sewalik Range, Punjab.

226. *SYNAPTES TIBETANUS*, Gould.

This new species I met with on the Salt Lakes of Ladakh in August 1852 ; confined to Ladakh, and not found in India.

227. *FRANCOLINUS VULGARIS*, Stephens.

*Tetrao francolinus*, Linnæus.

Local name, Kala Tetur. Black Partridge of Europeans.

The Black Partridge enjoys a far wider range than any of the other Francolins of India. It is plentiful in Bombay and Bengal, and on the lower ranges of the Western Himalayas at all seasons. Neither the torrid heat of the plains nor the snows of the high ranges seem to affect this bird. I brought a pair to England with me in 1855 ; I think the species would thrive in this climate. It is not gregarious ; seldom more than a pair are found together : its flesh is pale and well-flavoured ; but neither the Black Partridge nor any of the Indian game birds will bear comparison in this respect with the game birds of Britain. They commence to pair about the beginning of April on the Himalayas, but earlier on the plains of India ; the young remain with the parents a long time, and are not fit for shooting until the latter end of October. During incubation the males can be heard answering one another all over the mountains ; the call is harsh, and composed of four distinct sounds following each other in this manner : *whee-wha-whieh ä whiëk*, repeated at short intervals when perched on a stone or in dense cover.

228. *CACCABIS CHUKAR* (Gray).

Chuckor of the natives and Europeans.

It is found in small numbers among the ravines and low barren hills north of the river Jhelum, Punjab ; but the low ranges of the Western Himalayas may be said to be its proper limits ; from this it extends northwards to Tibet and Chinese Tartary, as far north as Europeans have yet penetrated. It is said to abound in Persia and Afghanistan. I have no doubt, from the countries it frequents and its nature and habits, this bird would thrive equally well on the mountains of Scotland. Its favourite haunts are bleak and barren mountains covered only with low scrub. Usually seen in coverts ; the flight is strong and rapid. The breeding-season commences about the middle of May ; the nest, composed of dried grass, is placed under the cover of a jutting rock, or in thick jungle. It lays from nine to twelve eggs of a pure white colour, which are usually hatched in July. The young birds grow rapidly, and attain the size

of the parent before they can fly, and, strictly speaking, are not fit for shooting until the middle of September. During incubation, the male remains near the nest, and can be heard calling all day; its call much resembles that of the domestic hen, being a "cuc cuc" repeated often. There is no difference in the plumage of the sexes; only the males have rudimentary spurs. The Chuckor is easily domesticated, and will associate with poultry. The Cashmerees call it Kau-Kau, from its cry; although not found in the valley, it is common on the low hills around. This bird probably affords better sport than any other species of the family in India, as the rapidity of its flight and the situations it frequents try the energies of the sportsman.

229. *AMMOPERDIX BONHAMI* (G. R. Gray).

The existence of this species has been known for several years; but until lately all the specimens were brought from Afghanistan, where it abounds on sandy wastes and barren mountains. It is plentiful on the low hills of the Northern Punjab, particularly the Salt and Suliman Ranges; I do not think it is found further south than the former mountains, and I never saw the species on the Western Himalayas. It bears a close resemblance in habits to the last species, and is often seen with it. It is known by the name of "Sisi" in the Punjab.

230. *PERDIX HODGSONII* (Gould, B. A.).

Tibet Partridge.

As early as 1841 Mr. Wilson, an indefatigable and discerning sportsman, shot a species of Partridge near the village of Soukee, on the Snowy Ranges north of Mussouree; and from the description given by him in his "Notes on the Habits of the Game Birds of the Himalayas," published in the December number of the 'Calcutta Sporting Review' for 1848, I had no difficulty in detecting its similarity to a specimen killed by Capt. Smith, 75th Regiment, in Nobra, Northern Ladakh, during the summer of 1854. Mr. Hodgson met with the species on the Nipal Ranges, and subsequently published an account of it in the 'Journal of the Asiatic Society of Bengal,' vol. xxv. p. 165; but to Captain Smith is the credit due of having brought the first specimen to Europe, from which Mr. Gould's delineation was taken. Captain Smith's specimen has since been deposited in the British Museum. It would appear, from Wilson's and Smith's accounts, that the bird is very rare in the districts they visited, which I apprehend were only its most southern limits.

231. *ARBORICOLA TORQUEOLA* (Valenciennes).

Wood Partridge and Hill Partridge of Europeans; Ban tetra of the natives.

Nowhere common; frequents forests and thick jungles, generally seen single or in pairs; a few are occasionally met with in the oak forests on the ranges around Simla, Western Himalayas.

232. *PERDICULA ASIATICA* (Latham).*Coturnix pentah*, Sykes.

"Lowa" of the natives; Bush Quail of Europeans.

Frequents the valleys of the lower ranges of the Western Himalayas; gregarious and migratory. Its food consists of small seeds, such as mustard. Rises with a quick whirring noise; flies only a short distance, frequently dropping into the nearest bush, where it secretes itself. I have not seen this species on the plains of India.

233. *COTURNIX COMMUNIS*, Bonnaterre.*Tetrao coturnix*, Linnæus.

Dispersed all over India; assembling in great numbers during the ripening of the spring and autumn crops. Breeds in the dense jungles.

234. *COTURNIX COROMANDELICA* (Gmelin).

Rain Quail.

Not uncommon during the rains in the gardens and fields around Poonah in the Deccan; not seen in Scinde, Punjab, or the Himalaya Mountains.

235. *OTIS MACQUEENII* (Hard.).

Common in Scinde; found in the country between Loodeana and Ferozepoor, likewise in various parts of the Punjab. They frequent sandy plains alternating with patches of long grass and fields of grain, and cause much destruction in wheat-fields by eating the young shoots. Iris black; *sclerotic* coat yellow; eye large and globular. This bird is migratory in the above districts, and only seen in winter; doubtless it comes from Persia, where it is said to be found at all seasons. English sportsmen call this bird "Hau-bara."

236. *EUPODOTIS EDWARDII* (Gray).*Otis nigriceps* (Vigors).

Found occasionally near Poonah in the Deccan; not common. It is said to have been seen in the Valley of Peshawur, but this only from native reports.

237. *CURSORIUS COROMANDELICUS* (Gmelin).

Pretty common on the sandy wastes of Scinde; gregarious; seen usually in flocks of fifteen or twenty. Runs with great speed. Favourite food, a species of Sand Locust. The flesh of this bird is very tender and wholesome.

238. *ÆDICNEMUS CREPITANS* (Temminck).

"Khurma" of the natives.

Bastard Floriken of Sportsmen.

On the banks of the Jhelum River, from the town of Jhelum south-

ward ; in the jungles between Ferozepoor and the Himalayas ; partial to certain localities : common.

239. *LOBIVANELLUS GOENSIS* (Gmelin).

Did de-do-it of Europeans (expressive of cry).

Is widely distributed over the Deccan, Scinde, Bengal, Cashmere, and the lower ranges of the Western Himalayas ; they frequent rice fields, pools, and marshes ; and the well-known cry renders the species familiar to every European in the East. Often heard at night, the words resemble the following : “ *Did you do-it, did you do-it, did did did did you do it dōō it dōō it, &c.* ” Its habits very much resemble the *Tringa vanellus* ; generally seen in couples ; does not migrate.

240. *VANELLUS CRISTATUS*, Meyer.

Makes its appearance about the month of October on the N.W. frontier of the Punjab, and remains until March. I think they migrate to Afghanistan ; and, from not seeing the species south of Rawul Pindee, I am inclined to think they are only found on the pools and marshes around Peshawur, Attock, &c.

241. *CHÆTUSIA GREGARIA* (Pallas).

Pretty common during the cold months in the fields and wastes near Loodeana, in the N.W. Provinces of Bengal.

242. *HIATICULA RUFINELLA*, Blyth, Ann. N. H. 1833.

? *Charadrius leschenaultii*, Lesson.

I shot a specimen of this species on the Chimouraree Lake, in Ladakh ; it is now in the possession of Sir William Jardine, Bart. The species breeds in that locality ; not seen in the Punjab.

243. *HIATICULA PHILIPPINA* (Scopoli).

Frequents the rivers and streams in the Deccan, Punjab, and Cashmere : common.

244. *HIMANTOPUS CANDIDUS* (Bonn.).

On the pools and marshes of the Punjab. I have frequently seen its legs bent and deformed. There is considerable variety of plumage, owing to age or sex. *Quære*, is *H. intermedius*, Blyth, J. A. S. xviii., a distinct species, or only a variety of those above ?

245. *IBIDORHYNCHUS STRUTHERSII*, Vigors.

Met with the above on one of the branches of the Dras River (Kurstee, near the Ligla Pass) in Ladakh : by no means common, and not seen elsewhere.

246. *TOTANUS GLOTTIS* (Linnæus).

Generally distributed over the Deccan, Scinde, Bengal, and the



Himalayas, as far north as Chinese Tartary; solitary in its habits; frequents pools and streams.

247. *TOTANUS CALIDRIS* (Linnæus).

248. *ACTITIS OCHROPUS* (Linnæus).

249. *ACTITIS HYPOLEUCUS* (Linnæus).

250. *LIMOSA ÆGOCEPHALA* (Linnæus).

Also generally distributed over the Deccan, Scinde, Bengal, and the Himalayas, as far north as Chinese Tartary: all are common.

251. *NUMENIUS ARQUATA*, Linnæus.

Lakes of Cashmere and rivers of the Punjab, pretty common.

252. *NUMENIUS PHÆOPUS*, Linnæus.

Mouth of the Indus, near Kurrachee, on the sea-coast: common.

253. *TRINGA MINUTA*, Leisler.

Rivers of the Punjab, common.

254. *PHILOMACHUS PUGNAX* (Linnæus).

Is found on the lakes and marshes of the Punjab during the cold months, but migrates towards the end of April. Before departure, they assemble in flocks. I have never seen the males in their complete plumage.

255. *SCOLOPAX RUSTICOLA*, Linnæus.

The Woodcock breeds in the pine forests of the Western Himalayas; during winter it repairs to the valleys of the lesser ranges. Not uncommon in the forests of Cashmere; but they do not occur in numbers sufficient to repay the necessary toil in searching for them. The Western Ghauts and Nilgiris are likewise localities frequented by this species.

256. *GALLINAGO NEMORICOLA* (Hodgson).

In the lonely glens, by the side of some mountain streams, where the pine grows tall and dense, and the sun's rays seldom penetrate, there we meet the Solitary Snipe, from the lowest ranges of the Himalayas to the limits of its forest. Nowhere common; many old Himalayan sportsmen have never seen it. I have observed considerable variety in regard to size of different specimens. One killed on a mountain near Simla was not larger than a Common Snipe.

257. *GALLINAGO SCOLOPACINUS*, Bonap.

258. *GALLINAGO GALLINULA* (Linnæus).

The Common and Jack Snipe abound all over India, and during

winter on the fens and marshes of Cashmere. Their migrations are not well defined. I found them abundant at Poonah in November, whereas they are not plentiful in Bengal or the Punjab until the latter end of December, and disappear by the end of April. A few are found all the year round in the marshes of Bengal, where they doubtless breed. Although common in winter in the Vale of Cashmere, I never saw a single specimen in summer. I think they leave N. W. India and Cashmere to breed in the more temperate parts of Persia or Afghanistan, as the few seen during the hot months will not account for the tremendous numbers which frequent the marshes during the cold season.

259. *RHYNCHEA BENGALENSIS* (Linnæus).

There is considerable variety of plumage in some specimens. Comes in with the last two, and, although not nearly so common, is by no means rare in the Punjab and Deccan.

260. *HYDROPHASIANUS CHIRURGUS* (Scopoli).

Water Pheasant of Europeans.

Is very common on the lotus-covered lakes of Cashmere, where it breeds. Its favourite attitude is sitting on the broad leaf of the lotus. Flight irregular and flapping. Food, insects. Call, harsh, and resembles that of the Water-hen. Is not confined to the lakes in the valley, but sometimes makes excursions up the streams, and has been found in the interior ranges. Not found in the Punjab.

261. *GRUS CINEREA*, Bechst.

Is very abundant during the cold months on the rivers of the Punjab. They migrate evidently from the west, and return again before the commencement of the hot weather. The numbers that frequent the banks of the Jhelum below the city of that name and the confluence with the Chenab, are almost beyond conception; they commit great havoc in the wheat-fields. They are shy and difficult of approach.

*Note.*—The *Ardea virgo* and *Grus antigone* I have not seen in the Punjab: the former is said to be common on the banks of the Jumna, Chumbel, and Soane; the latter, it would appear, does not visit the upper provinces of Bengal.

262. *FALCINELLUS IGNEUS* (Gmelin).

Black Curlew.

Common in the Deccan and Punjab; frequents marshy places, and feeds on carrion, beetles, scorpions, &c. Generally seen in pairs, or three together. Associates with Rooks on the frontier of the Punjab. Native name, "*Kutchechorrah*."

263. *PLATALEA LEUCORODIA*, Linnæus.

Plentiful on the rivers of the Punjab during winter.

264. *CICONIA ALBA* (Belon).

A winter visitor on the rivers of the Punjab; not common, having only seen one specimen on the Chenab.

265. *CICONIA NIGRA* (Linnæus).

Shot a female on the Jhelum River, in the Vale of Cashmere. I did not see it elsewhere.

266. *CICONIA LEUCOCEPHALA* (Gmelin).

I procured a specimen of this near Poonah, and observed it (what was doubtless the same species) on the wing on the river Indus.

267. *ARDEA CINEREA* (Linnæus).

Common in the Deccan, Indus, and rivers of Punjab. Plentiful in the Valley of Cashmere. There is a large herony in the celebrated Shalimar Garden, where the bird is preserved by the present ruler on account of its feathers, which furnish the plumes for the turbans of the royal princes of Cashmere.

268. *HERODIAS ALBA* (Linnæus).

Indus river, seen only on the wing?

269. *HERODIAS BUBULCUS* (Savigny).

Common on the marshes and in the rice-fields of the Deccan.

270. *ARDEA COMATA*, Pallas.

Squacco Heron.

Generally distributed over the lakes and *geels* of the Punjab.

271. *BOTAURUS STELLARIS* (Linnæus).

A winter visitor in the Punjab, and all the year in Cashmere.

272. *ARDETTA MINUTA* (Linnæus).

Less common than the last, and perhaps only found during the cold months in the *geels* and lakes of the Punjab.

273. *RALLUS STRIATUS* (Linnæus).

Punjab, pretty common in winter.

274. *RALLUS INDICUS*, Blyth; J. A. S. xviii. p. 820.

Punjab during the winter months, common.

275. *GALLINULA CHLOROPUS* (Linnæus).

N. W. India and Cashmere, common.

276. *FULICA ATRA*, Linnæus.

Lakes and fens of the Punjab and Cashmere, common. Resident in the above-mentioned localities during the year.

277. *LARUS RIDIBUNDUS*, Linnæus.

Breeds on the fresh- and salt-water lakes of Ladakh.

278. *LARUS BRUNNICEPHALUS*, Jerdon.

Indus and rivers of Punjab. Common.

279. *GELOCHELIDON ANGLICUS* (Montagu).

Indus river. Common during the winter months.

280. *STERNA HIRUNDO*, Linnæus.

Indus and rivers of the Punjab. Lakes and fens of Cashmere. Common.

281. *STERNA JAVANICA*, Horsfield.

Indus, rivers of Punjab, Cashmere. Very common.

282. *PELICANUS JAVANICUS*, Horsfield.

Indus, but seldom on the rivers of the Punjab. Common.

283. *GRACULUS CARBO*, Linnæus.

Common on the Indus, Punjab rivers, lakes and rivers of Cashmere.

284. *GRACULUS SINENSIS* (Shaw).

Punjab rivers and Cashmere. Pretty common on the former in winter; at all seasons on the Jhelum River, Cashmere.

285. *GRACULUS PYGMÆUS* (Dallas).

Punjab rivers, not common.

286. *PHÆNICOPTERUS ROSEUS*, Pallas.

Punjab rivers and lakes during the cold months. Gregarious. They march about in the shallows, or remain motionless, standing on one leg, with their heads under their wings. Average length of several specimens measured, from bill to extremity of great toe, 5 feet 7½ inches; between tips of wings, 5 feet 10 inches. Weight, 5 lbs.?

287. *ANSER ALBIFRONS*, Linnæus.

Identical with specimens in the British Museum. A winter visitor to the rivers and lakes of the Punjab. Average weight, about 5 lbs.

288. *BERNICLA INDICA* (Gmelin).

Bar-headed Goose of European sportsmen.

Is very common on the Indus and rivers of the Punjab during the cold months. Generally seen in very large flocks.

289. *CASARCA RUTILA* (Pallas).

Indus and Punjab rivers, Cashmere. Breeds in great numbers by the sides of the fresh- and salt-water lakes of Ladakh.

290. *ANAS CLYPEATA*, Linnæus.

Indus and Punjab rivers in winter. Common.

291. *ANAS BOSCHAS*, Linnæus.

Indus and rivers of Punjab in winter. Breeds and remains all the year in the Valley of Cashmere.

292. *ANAS PÆCILORHYNCHA*, Pennant.

Indus, only in winter.

293. *ANAS ACUTA*, Linnæus.

Indus; Punjab; Cashmere. Abundant during the winter months.

294. *QUERQUEDULA CRECCA* (Linnæus).

India. Common.

295. *QUERQUEDULA CIRCIA* (Linnæus).

Punjab rivers and lakes during the cold months. Common.

296. *FULIGULA RUFINA* (Pallas).

A winter visitor on the lakes and rivers of the Punjab. Not common. Average weight of male 3 lbs. Iris red.

297. *FULIGULA NYROCA* (Guldenstedt).

Frequents the lakes of Cashmere, and remains there all the year. Very common on the City Lake. A winter visitor in the Punjab, associating generally with the *Querq. crecca*.

298. *MERGELLUS ALBELLUS* (Linnæus).

Migratory. Common on the lakes and rivers of the Punjab during the cold months.

299. *PODICEPS PHILIPPENSIS*, Gmelin.

Very common at all seasons on the Cashmere lakes. A winter visitor in the Punjab.

There are few more interesting studies in natural science than that of the migrations of birds; and Northern India and its large rivers afford excellent opportunities of enriching one's knowledge on this head. Every one who has traversed the great rivers of Northern India must have been struck during the winter months on observing the vast flocks of wildfowl that frequent the sands and creeks of the Ganges, Indus, and rivers of the Punjab, or the lakes and fens inland.

What becomes of these large flocks during summer? for in June or July, should he revisit these rivers, he must observe the absence of all these interesting objects. Oft has the question been asked, and the answer been much the same: "They go away during summer, and come back in winter." But where do they go to? they surely do not migrate southwards: for it is hot enough in all conscience in Scinde or the Punjab in summer; and the banks of the

Indus are as hot as the banks of any river in India or elsewhere. That the temperate latitudes of Central Asia form their summer retreats, I think cannot be doubted. I spent the greater part of three years on the north-west frontier of the Punjab, and one year very near the Khyber Pass, besides visiting the lakes of Cashmere and Tibet, which afforded me good opportunities of observing the habits of these interesting wanderers. The Bar-headed Goose (*Bernicla Indica*), so plentiful in the Punjab, can be seen in vast flocks passing over Peshawur in a southerly direction. I have seen lines of these birds of a mile in length; and often, at night, their rough gabblings can be distinctly heard. It seems, during their migrations, they fly all night, and rest on the banks of rivers or lakes during the heat of the day. The immense flocks of Cranes (*Grus cinerea*), seen likewise at this season steering their course southwards, explains the direction of their migrations; the same remark is applicable to the Mallard, Teal, Gargany, and Shovellers. The Ferruginous Duck (*A. rutila*) and *Anser albifrons* appear on the marshes and rivers of the N.W. frontier towards the end of November. In my journal I find the following remarks:—"December 11th, Rawul Pindee.—Shot three Grey Geese (*A. albifrons*) on a marsh in this neighbourhood: they had evidently just arrived; for they were very thin, and could not fly any distance. The Lapwing (*V. cristatus*) has been seen in the marshes for some time, generally in small flocks. The Pin-tail, Castaneous and Red-crested Duck (*Fuligula rufina*), are arriving daily."

The Greater Sand-grouse (*Pterocles arenarius*) migrates probably to Afghanistan or Persia during summer; for when at Peshawur I saw large flocks constantly flying southward at the commencement of winter. The Rook comes certainly from the west, for reasons mentioned elsewhere; and the European Jackdaw, Chimney-swallow, and Sand-marten from Cashmere. The *Turdus atrogularis*, so common in the gardens and orchards around Peshawur during winter, is evidently a migratory bird; but its summer habitat may not be very far across the neighbouring mountains, as I found it at all seasons on the Himalayas at elevations of 8000 or 9000 feet above the level of the sea.

Regarding Cashmere, there is perhaps no place in the world where wild fowl are more abundant during the winter months. The magnificent Waller Lake and every pond are literally crawling with Ducks, &c.; the inhabitants kill and destroy them without mercy; the bazars of the cities are filled with game at this season. A fine goose can be purchased for about twopence English: but nearly all take their departure before the end of April; and, except a few stragglers and residents, the Waller Lake in May presents an immense pond whose placid waters the fairy-like Tern is seldom seen to ruffle. I found the *Anas rutila* breeding among the rocks surrounding the fresh- and salt-water lakes of Ladakh, and the *Bernicla indica* and *Anser albifrons* were seen in great numbers in June and July on the Chimmaraaree Lake. These lakes are about as far north as it is safe at present for Europeans to travel. The

Chinese Tartars strongly object to our entering their country ; so that our researches on this subject are somewhat narrowly defined. Unfortunately, the Afghans have had little confidence in the British since 1842, so that their mountains and even the Peshawur Ranges remain yet unexplored ; but when every facility can be obtained on the Western Himalayas, I am confident there is much yet to be done. There is much interest connected with the natural history of the two vast regions, Punjab and Himalayas, so intimately adjoining each other, yet so very different in climate and appearance ; and sure am I that well will he be repaid for his trouble who zealously investigates their hidden treasures.

During nearly seven years I resided in various parts of India, commencing at Poonah in the Deccan ; afterwards I journeyed through Scinde, and passed across the upper provinces, and was some time stationed on the lower Himalayan Ranges near Simla ; I then traversed the Punjab northwards to Peshawur, and twice visited Cashmere and Ladakh. In my excursions I made it a rule to commit to paper minute descriptions of every animal I killed ; and, although by means of comparison and the assistance of friends I have been enabled to identify more than half my collection, I find a large number of species remain yet unnamed, many of which are doubtless rare and interesting. I am sensible, however, of the amount of gratitude I owe to many friends for their counsel and assistance, among others, to Mr. Moore, Curator of the Derby Museum, Liverpool, who not only afforded me every facility for examining specimens in that rare collection, but also rendered me valuable assistance by placing the excellent library of reference of that institution at my disposal.

Since these notes were begun, I have been informed by my very kind friend, J. Gould, Esq., that the rare *Pyrrhula* described in this paper, is a new species, and has been described and figured in the last number of his 'Birds of Asia.'

7. REMARKS ON THE HABITS AND HAUNTS OF SOME OF THE MAMMALIA FOUND IN VARIOUS PARTS OF INDIA AND THE WESTERN HIMALAYAN MOUNTAINS. BY A. LEITH ADAMS, SURGEON, 22ND REGIMENT. COMMUNICATED BY MESSRS. T. J. AND F. MOORE.

1. SEMNOPITHECUS ENTELLUS (Dufresne, sp.).
2. SEMNOPITHECUS SCHISTACEUS, Hodgson.
3. MACACUS RHEBUS (Audub.).

All the above species are found in the Western Himalayas ; the *M. rhesus* is probably the most common and generally distributed over the wooded districts.

4. PTEROPUS EDWARDSI, Geoff.

I found this species abundant at Poonah in the Deccan. On a